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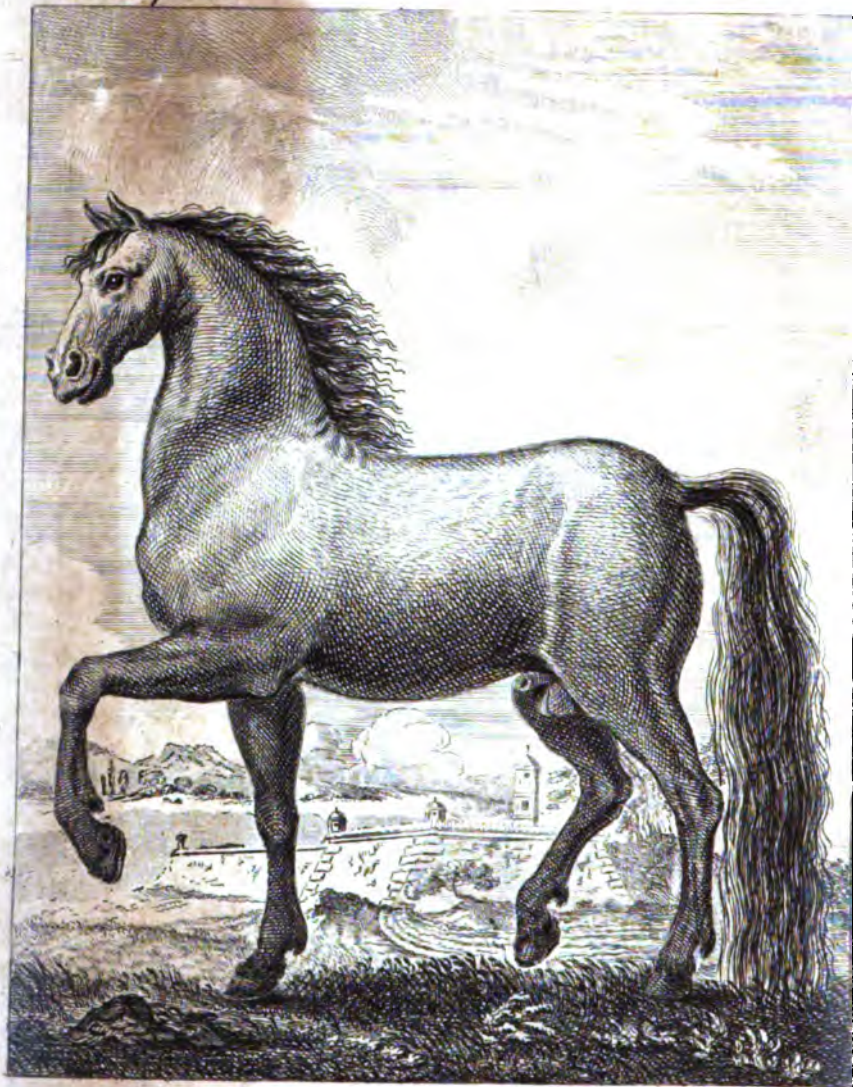
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Frontispiece



A NEW
T R E A T I S E
O N T H E
D I S E A S E S
O F
H O R S E S:

Wherein what is necessary to the
KNOWLEDGE of a HORSE,

The Cure of his DISEASES, and other Matters
relating to that Subject, are fully discussed, in
a plain and easy Manner, from many Years
Practice and Experience. With the cheapest and
most efficacious Remedies.

B Y

WILLIAM GIBSON, Surgeon,
In Duke-Street, Grosvenor-Square.



Illustrated with Thirty-two Copper-Plates.

In TWO VOLUMES.

V O L. I.

The SECOND EDITION, corrected.

L O N D O N:
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T H E
P R E F A C E.

I SHALL make no apology, by way of Preface, for the ensuing Treatise; and shall only shew the method I have followed in the prosecution thereof.

I have divided the Book into Three Parts.

The First contains a short Description of the Properties peculiar to the different kinds of Horses, viz. their Age, Shape, Beauty, and Goodness; also their Faults and Imperfections, as well those that are natural, as those that are acquired by habit, or are caused by

The P R E F A C E.

imperfect cures, or other ill management. Wherein the reader is instructed in the knowledge of the Eyes and Feet, and in the symmetry and proportion of the various parts of a Horse, in so plain and intelligible a manner, that any one may from hence, in a short time, attain to a competent skill in Horses.

The Second contains a short Epitome or Abridgment of Anatomy, wherein all the Parts of a Horse are described in an easy and instructive manner, for the benefit of those who have not seen dissections, or attended lectures of Anatomy.

In this anatomical Part I have studied all possible brevity, and at the same time have omitted nothing that may give the reader a clear notion of the Animal Oeconomy, with the diseases and accidents to which it is exposed; which I have illustrated in several Places from Observations on
Horses

The P R E F A C E

Horses I have seen opened, as a proper foundation for understanding their diseases.

The Third contains an Account of the several maladies and diseases incident to Horses, with their signs, causes, and method of cure.

This I have introduced with a Discourse concerning the Diet of Horses, and the different manner of Feeding, and other management, whether in the house or at grass; and the accidents to which Horses are exposed by mistakes of this kind. I have here also laid down several useful and necessary cautions concerning Exercise; directions for Bleeding; the cases that require Purging; the proper time and manner; with many useful helps for rearing young Horses that have been kept up and pampered for sale, and thereby rendered unfit for present use. Also the best rules to preserve Health, and to prevent those accidents that ei-

The P R E F A C E.

ther cause sickness, or produce such ill habits of body as often render Horses unserviceable.

In treating the Diseases I have rarely consulted any one author, having observed the writers on the subject of Farriery for the most part defective or trifling, either from their want of judgment or sufficient experience ; and therefore I have described the distempers of Horses chiefly as they have occurred to me in many years practice, not only among Gentlemen's Horses, where I have had great variety of extraordinary cases, but among some hundreds of Troop-Horses, which were constantly under my care: In all which I have advanced nothing but what will be found agreeable to the rules of practice, and what I have had confirmed by frequent experience ; wherein I have studied the utmost brevity, by avoiding all unnecessary digressions and tedious disquisitions, which might only have the effect to puzzle those who are not,
in

The P R E F A C E.

in some measure, versed in the knowledge of the several branches of physic: And therefore I have described each distemper, whether simple or complicated, by relating the true causes with the symptoms, as they shew themselves by their various degrees and appearances; and have clearly distinguished in all cases where the same common symptoms are found in different diseases; by other diagnostics and signs that are peculiar, and point out the diseases immediately treated of; by which any Man of common understanding may be able to proceed in the cure of most Distempers, with much greater certainty than by any helps of this kind that have been yet offered to the Public.

Neither have I been less regardful of the prognostics, by distinguishing the good from the bad; and in those that portend danger, I have endeavoured to account for them in an easy familiar Way, to shew from whence such bad prognostics generally arise, and
how

The P R E F A C E.

how far any of the principal parts are affected when these appear, so as they may be prevented; or that a sudden turn may be given to remove the ill disposition that produces them. And this I look upon to be of such consequence to the right understanding the Diseases of Horses and their cures, that, without some insight into these things, it is impossible to practise with any certainty or safety.

I have also taken notice of the incurable cases of Horses, whether those proceeding from natural defects, or from accidents ill cured; likewise those where the cure may be both uncertain, and at the same time so tedious as to exceed the value of the Horse. All which I have described in a manner, that ignorant pretenders to Farriery may be so far convinced, as not to undertake impossibilities; and that the owners of Horses that are incurable, may not be imposed on by such persons,

The P R E F A C E.

sons, nor keep Horses to be only an
useless and tiresome expence.

Upon the whole, I have endeavoured
as much as possible to render this work
of publick use, by treating the subject
in such a manner, that those who have
already attained to any knowledge in
the Diseases of Horses, will find I
have advanced nothing but what will
perfectly agree with their own expe-
rience; and to such this Treatise will
be a great help; and must also be the
means to instruct those who are unac-
quainted, or have had but little insight
into such things, having not only
studied the greatest plainness every
where throughout the whole, but given
several instances of very extraordinary
cures, and made many useful discove-
ries, which I hope may tend greatly
to the preservation of our Horses. And
as this was my chief design in compil-
ing a new Treatise on the Diseases and
Maladies of Horses, so I have formed
it on a different and more practical
scheme

The P R E F A C E.

scheme than those books I formerly published on that subject. I have also inserted the easiest and cheapest remedies of all kinds, such as I have found the most successful in my own practice, and may be readily procured in the country, and many of them even in places remote from great towns. I have likewise given several precautions against bad drugs, and medicines not faithfully and well prepared, which often times hinder the expected success.

Our Horses being of no small importance to the nation in general, both in peace and war, as well of great use to particular persons of all ranks, I judged I could not do a better and more useful service than to publish my own experience, after so many years practice; wherein I have bestowed more pains and labour, in rendering it suitable to every one's capacity and learning, than if I had given it a fuller scope, and extended it to a greater length, which, tho' it would have been
more

The P R E F A C E.

more easy to myself, might have been less profitable to others. And therefore, in regard of the great pains and time I have spent in compiling so useful a Treatise, I may presume to hope for some suitable encouragement from the Public.

I take this opportunity to acquaint the Publick, that I have educated my son WILLIAM, with an intention to succeed me in my business, he having been constantly employed in it for these fifteen years past; and I hope, and am indeed persuaded, he will give universal satisfaction. ♦

Duke-street, Oct. 1. 1750.

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the 1990s, the number of people in the world who are under 15 years of age is expected to increase by 1.5 billion, from 1.1 billion in 1990 to 2.6 billion in 2010. The number of people aged 65 and over is expected to increase by 1.1 billion, from 350 million in 1990 to 1.4 billion in 2010. The number of people aged 15-64 is expected to increase by 1.5 billion, from 2.5 billion in 1990 to 4.0 billion in 2010. The number of people aged 65 and over is expected to increase by 1.1 billion, from 350 million in 1990 to 1.4 billion in 2010. The number of people aged 15-64 is expected to increase by 1.5 billion, from 2.5 billion in 1990 to 4.0 billion in 2010.

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PART I.

Containing the necessary Things for the
Knowledge of a HORSE, &c.

CHAP. I.

The Proper Names of the External Parts
of a HORSE.

AS my intention, in this short treatise, is to render the knowledge of Horses, with the accidents and diseases to which they are liable, as plain and easy as possible: Therefore, that I may not deviate too far from the common method, I have begun with the names of the external parts of a Horse; for tho' many of his parts have their names in common with all other animals, yet he has others that custom has rendered peculiar to him only; and without some acquaintance with these terms and distinctions, we can neither know much of a Horse nor of his diseases.

The first thing that comes to be described in a Horse is his Head, consisting of several Parts, as the Ears, the Nose, the Mouth, the Forehead, the Eyes and Temples, &c. The two hollows above the Eyes, so remarkable, especially

Names of
the Exter-
nal Parts
about the
Head.

cially in old Horses, are called the Eye-pits. The Forehead is often called his Brow; and that part of the Head which is the most backward, where it joins to the Neck, is called the Poll or Noll; and the juncture of the Head and Neck, the Onset or Setting-on of the Head. The Upper and Under-Lips, including the Tip of the Nose, form the Muzzle; and the Hairs that are scattered on a Horse's Under-Lip to the place where the curb of the bridle rests, is called his Beard. The inside of the Mouth, between the Lower Jaw-Bones, where the Tongue lies, is called the Channel. The fleshy rows that run across the upper-part of the Mouth, and are so distinguishable in young Horses, are called the Bars, which reach almost quite to the Palate.

The Neck reaches from the Head to the Shoulders. The Hair which grows along the upper-part, is called the Mane, and the part that is the most arched the Crest, which in a fine Horse full of vigour rises semicircular, but when a Horse has been diseased or starved that his Neck sinks, he is said to be Crest-fallen.

The Withers is the part that rises upon the top of the Shoulders, and is composed of the highest Spines. It is from the top of the Withers that a Horse is measured to know his size.

From the Withers to the hind-part of the Back are the Reins, which generally reach the length of the saddle to the highest Spine; and in some long-back'd Horses a little beyond the length of a common saddle. Next the Reins
are

are the Loins, which reach to the Croup ; and where the Crupper lies is termed the Channel. The Croup reaches from the Reins to the Dock, and includes all that Declivity or Descent which goes to the Tail, and in men and some other animals is called the Rump.

The Body of a Horse is usually called his Carcass ; so that a large-bodied Horse is said to have a large Carcass, and a slender one to have a small Carcass ; and when the Body is compact and well made, he is said to be well carcas'd, or to have a good Carcass.

The Body
or Carcass.

The Flanks are sufficiently known, being the parts on both sides below the Reins which reach from the Short-Ribs to the Haunches ; and the Belly is that which reaches from the Brisket to the Sheath.

The Shoulders inclose the whole Breast on both sides, beginning from the Withers, and reaching downwards to the Fore-Legs or Arms.

The Arms begin from the Shoulders, and the hind-part which points towards the Brisket is called the Elbow ; the Fore-Leg or Arm reaches to the Knee ; on the inside runs the Plat Vein, which is often opened for Lameness of the Shoulders or disorders of the Lungs. The part which reaches from the Knee to the Pastern is called the Shank ; behind the Shank is inserted into the Heel that strong tendon called the Back-Sinew, which is so often subject to be strained or hurt.

The
Limbs,
&c.

The Pastern reaches from the lower part of the Shank to the Foot ; where it joins the Shank is called the Pastern-Joint or Fetlock-Joint, as

some term it, from the tuft of hair that grows on the lower part of the Leg behind, above the Heel, which is called the Fetlock. The Pastern has a juncture in the middle, to facilitate the motion of the foot; so that the upper part next the Shank is called the Great Pastern, and that which joins the bone of the Foot, the Lesser Pastern, and where it joins the Foot is called the Coffin-Joint.

The Hoof is often called the Coffin, and the bone of the Foot the Coffin-Bone, because the Hoof incloses that bone, as in a coffin. The hair that circles round the upper part of the Hoof is called the Crown or Coronet.

The Foot consists of the Quarters, Sides, and Toe: The Quarters inclose the Heel, composing the inner and outer quarter, and end with the extremity of the Heel. The Sides and Toe need no description. The under part of the Foot is made up of the Frush or Frog, and the Sole. The Frog rises from the middle of the Sole, and terminates at the Heel: It is more soft and elevated than the Sole, and is that part which the Farriers shape like the point of a spear, when they pare a Horse's Foot, in order to his being shod. The Sole is that plate of horn which covers the bottom of the whole Foot, and adheres to the verge of the Hoof, where the nails are driven in shoeing.

In the hind parts of a Horse are his Haunches, which begin at the two bones on each side which inclose the Loins, and descend to the Ham or Hock.

The

Chap. 1. of a H O R S E,

The Stifle is that part which jets out from the edge of the Thigh towards a Horse's Belly, when he is in any action that bends his Leg: It is the Knee-Pan of a Horse, situated, on the middle joint of the Thigh, between the Thigh-Bone and the Leg. The Whirl-Bone is the upper end of the Thigh-Bone towards the Hip; and when that happens to be much sprain'd, a Horse is said to be Hip'd.

The Thigh or Gascoin begins at the Stifle, and reaches to the Ply or Bending of the Ham or Hock. When a Horse is round and plump in the Thighs, he is said to be well gascoin'd.

The Ham or Hough is the Ply or Bending of the Hind-Leg. The round knob behind is called the Heel of the Hock, or Cappelette, according to some writers, and where the great Master-Sinew is inserted.

As the Small of the Fore-Leg is called the Shank, so the Small of the Hind-Leg is called the Instep. The Pasterns and Feet having the same names and uses behind as before, need no further description.

These being the usual names and appellations by which horsemen distinguish the several parts of a Horse, it remains only to take notice, that the Right-Side of a Horse, is always called his Off-Side, and his Left the Near-Side, being that to which we always approach when we go to mount or handle a Horse. Upon this we also distinguish a Horse's several parts; for instance, we say the Off-Leg and the Near-Leg, the Off-Foot and Near Foot, the Off-Eye and Near-Eye; and so of others.

C H A P. II.

The surest Marks whereby to know the
Age of a H O R S E.

The division of
the Teeth.

THE age of a Horse is easily known by his Mouth till he comes Eight, after which the usual marks wear out. A Horse, like many other brute-animals, has its Teeth divided into three ranks *viz.* his Fore-Teeth, which are flat and smooth, his Tushes, and his Back-Teeth. His Back-Teeth or Jaw-Teeth are called his Grinders, being those by which a Horse chews and grinds his provender, and are in number twenty-four, twelve above and twelve below: They are strong double Teeth, with sharp edges; but when a Horse grows old they wear much smoother.

The Foal-Teeth.

The first that grow are his Foal-Teeth, which begin to come forth a few Months after he is foaled: They are twelve in number, *viz.* six above and six below; and are easily distinguished from the Teeth that come afterwards, by their smallness and whiteness, not unlike the Fore-Teeth of a man.

The Nippers or Gatherers, at what age they appear.

When a Colt is about two years and a half old, he casts the four middle-most of his Foal-Teeth, *viz.* two above and two below; but some do not cast out any of their Foal-Teeth till they are near three years old. The new Teeth are easily distinguished from the Foal-Teeth, being much stronger, and almost twice their size, and are called the Nippers or Gatherers,

Chap. 2. The Age of a HORSE.

7

therers, being those by which a Horse nips off the grafs, when he is feeding abroad in the fields, or in the house gathers his hay from the rack. When a Horse has got these four Teeth complete, he is reckoned three years old.

When he is about three and a half, or in the spring before he is four years old, he casts four more of his Foal-Teeth, *viz.* two above and two below, one on each side the Nippers or Middle-Teeth : So when you look into a Horse's Mouth, and see the four Middle-Teeth full grown, and none of the Foal-Teeth remaining but the Corner-Teeth, you may conclude he is four that year about *April* or *May* : But some are later Colts, which, however, makes little alteration in the Mouth.

The Tushes appear near the same time with the four last mentioned Teeth, sometimes sooner than these, and sometimes not till after a Horse is full four years old : They are curved, like the Tushes of other beasts, only in a young Horse they have a sharp edge all round the top and on both sides, the inside being somewhat grooved and flattish, inclined to a hollowness.

The
Tushes.

When a Horse's Tushes do not appear for some time after the Foal-Teeth above mentioned are cast out, and the new ones come in their room, it is generally owing to this, that their Foal-Teeth have been pulled out before their time, by the breeders or other dealers in horses, to make a colt of three years old appear like one of four, that he may be the more saleable ; for when any of the Foal-Teeth are

pulled out, the others soon come in their place; but the Tushes having none that go before them, can never make their appearance till their proper time, *viz.* when a Horse is about four, or coming four: And therefore one of the surest marks to know a four year old Horse, is by his Tushes, which are then but very small and sharp on the top and edges.

The Corner-Teeth.

When a Horse comes five, or rather in the spring before he is five, the Corner-Teeth begin to appear, and at first but just equal with the Gums, being filled with flesh in the middle. The Tushes are also by this time grown to a more distinct size, tho' not very large: They continue likewise rough and sharp on the top and edges. But the Corner-Teeth are now most to be remarked: They differ from the Middle-Teeth in their being more fleshy on the inside, and the gums generally look rawish upon their first shooting out, whereas the others do not look discoloured. The Middle-Teeth arrive at their full growth in less than three weeks, but the Corner Teeth grow leisurely, and are seldom much above the Gums till a Horse is full five: They differ also from the other Fore-Teeth in this, that they somewhat resemble a shell; and from thence are called the Shell-Teeth, because they environ the flesh in the middle half-way round, and as they grow the flesh within disappears, and leaves a distinct hollownes and openness on the inside. When a Horse is full five these Teeth are generally about the thickness of a crown-piece above the Gums. From five to five and a half they will grow about a quarter
of

of an inch high, or more ; and when a Horse is full six, they will be near half an inch, and in some large Horses a full half-inch above the Gums.

The Corner-Teeth on the Upper-Gums cast out before those on the Under ; so that the Upper Corner-Teeth are seen before those below ; on the contrary, the Tusshes in the Under-Gums come out before those of the Upper.

When a Horse is full six years old, the hollowness on the inside begins visibly to fill up, and that which was at first fleshy grows into a brownish spot, not unlike the eye of a dried garden-bean, and continues so till he is seven ; only with this difference, that the Tooth is more filled up and even, and the Mark or Spot becomes faint, and of a lighter colour. At eight the Mark in most Horses is quite worn out, tho' some retain the vestiges of it a long time ; and those who have not had a good deal of experience may sometimes be deceived by taking a Horse of nine or ten years old for one of eight. It is at this time only, when a Horse is past Mark, that one can easily err in knowing the age of a Horse ; for what practices are used to make a very young Horse or Colt appear older than he is, by pulling out the Foal-Teeth before their time, may be discovered by feeling along the edges where the Tusshes grow, for they may be felt in the Gums before the Corner-Teeth are put forth ; whereas, if the Corner-Teeth come in some months before the Tusshes rise in the Gums, it is to be much suspected the Foal-Teeth have been pulled out at three years old.

The Mark
in a Horse's
Mouth de-
scribed.

Falſe Mark. I ſhall take little notice of the tricks that are uſed to make a falſe Mark in a Horſe's Mouth, by hollowing the Tooth with a Graver, and burning a mark with a ſmall hot iron, becauſe thoſe who are acquainted with the true Marks, will eaſily diſcover the cheat by the ſize and colour of the Teeth, by the roundneſs and bluntneſs of the Tuſhes, by the colour of the falſe Mark, which is generally blacker and more impreſs'd than the true Mark, and by many other viſible tokens which denote the advanced age of a Horſe.

The Age of Horſes not eaſily diſcovered after the Mark is out. After a Horſe has paſſed his eighth year, and ſometimes at ſeven, nothing certain can be known by the mouth: Nevertheleſs ſome Horſes have but indifferent Mouths when they are young, and ſoon loſe their Mark; others have their Mouths good for a long time, their Teeth being white, even, and regular ſometimes till they are ſixteen years old, and upwards, with many other marks of freſhneſs and vigour; but when a Horſe comes to be very old, it may be diſcovered by ſeveral indications, the conſtant attendants of age, *viz.* his Gums wear away inſenſibly, and leave his Teeth long and naked at their roots: The Teeth alſo grow yellow, and ſometimes browniſh. The bars of the Mouth, which in a young Horſe are always fleſhy, and form ſo many diſtinct ridges, in an old Horſe are lean, dry, and ſmooth, with little or no riſing. The Eye-Pits in a young Horſe (except thoſe ſaid to be come of old Stallions) are generally filled up with fleſh, look plump and ſmooth; whereas they are ſunk and hollow in an old Horſe, and make him look

Chap. 2. The Age of a H O R S E.

11

look ghastly, and with a melancholy aspect. There are also other marks which discover a Horse to be very old, *viz.* grey Horses turn white, and many of them all over flea-bitten, except about their joints. This, however, happens sometimes later, and sometimes sooner, according to their variety of colour and constitution: Black Horses are apt to grow grey over their Eye-brows, and very often over a good part of their Face, especially those who have a star or a blaze fringed round with grey, when they are young. I have known two or three instances of black Horses turn'd white and flea-bitten with extreme old age: However, this but is rare; for most black Horses retain their native colour, except about their Face, Muzzle, and some of their joints. All Horses, when very old, sink more or less in their backs, and some Horses that are naturally low-back'd, grow so hollow with age, that it is scarce possible to fit them with a saddle. Of this kind are several Spanish and Barbary Horses, and many of the Danish and Flanders breed: Their Joints with old age grow also so stiff, and their Knees and Hocks bend, and are apt to trip and stumble upon every the least descent, tho' the way be smooth and no ways rugged. After which they are of little use to the owner.

C H A P.

C H A P. III.

Such Faults and Defects as ought chiefly to be avoided in buying of HORSES.

No small difficulty in buying of a horse well.

I Believe most of those who have any great dealings in Horses will readily agree in this, that few things in common life are more difficult than the buying of a Horse well: and I have known many who boasted of their skill and dexterity that way, and made greater pretences than others in the knowledge of Horses, very much deceived. This is a matter that does not depend upon a man's having more wisdom or parts than his neighbours, but upon long experience, with a good taste or fancy regulated with some judgment; otherwise a man is like to make but an indifferent choice.

There are so many circumstantial niceties about Horses, especially in what relates to the shape, make, and goings of a Horse; and so much is said about the marks of goodness and badness in Horses, that it would fill up a whole volume to recount half of what one may hear talked in a few days upon that subject; and therefore I shall only here have a regard principally to such things as relate to a Horse's being sound or unsound, as that which more immediately concerns my present province, with such natural defects and imperfections as render Horses the most unfit for common use; and shall recommend those who would be further instructed in such matters to the writings of the

the Duke of Newcastle, and to the works of the French and Italian equerries, who have been very minute in all those parts of Horsemanship.

When a man is about to chuse a Horse, if ^{Sufficient trial necessary.} he be never so good a judge, yet he must be forced to take some things upon trust, unless he be allowed a sufficient trial; for several defects in a Horse are of such a nature, that they cannot be easily discovered till a person has had him a short time in his own keeping. If a Horse has a lameness in any part that is easily perceived; if a Horse's Limbs are swelled; if he has specks or defluxions on his eyes; if he startles and flies off at the sight of common objects; if his Feet are so plainly bad as to make him go crippling along; if he heaves at his Flanks, and coughs: These, and many more of such-like, are defects that cannot be hid even from those who perhaps know but little of a Horse. And as to the shape and goings of a Horse, some criticize with more judgment, and are less guided by fancy than others; but the hidden faults of a Horse are not so easily seen into: For instance, some Horses, when turned six or seven years old, are subject to a dry chronical fixed cough, which comes upon them at uncertain times, perhaps twice or thrice a day, especially when such Horses happen to catch a fresh cold: Sometimes a Horse with this malady coughs seldom but after drinking; sometimes one shall never hear him cough while he is in exercise, but as soon as he comes into a stable, or stands still any time after riding, he falls

falls into a vehement fit of coughing, which often lasts but a little while. Sometimes he shall not be heard cough more than any other sound Horse for several weeks; and when the owner is ready to think him recovered, he shall fall again into his old way of coughing all of a sudden, and without any symptoms of a fresh cold. As this is a malady that cannot be easily cured, and often, tho' not always, endangers a Horse's wind, so it is not easily discovered by any apparent symptoms to the buyer, unless by chance he sees him fall into one of his fits of coughing; for the method that most people take to try a Horse's wind, by pinching the Windpipe, will make any Horse cough dry and hollow: So that a man by such trial may be easily deceived; and there will be but little alteration in the Flanks, unless a Horse be old, or his wind pretty far gone.

The goodness or badness of the Eyes is another thing wherein the best judges are sometimes mistaken; for most people regard the clearness and transparency of the eye, which indeed ought to be considered: but it is worth observing, that Horses, before they are six years old, have not that transparency in their Eyes which they arrive at afterwards, because while they are young and growing their juices are viscid and balsamic; so that their Eyes look thicker or clearer in proportion as their blood and juices happen to be more or less in a good state. The same may be observed in all Horses that have colds when the vessels of the Eyes are full: The Eyes at that time look thick and sometimes

sometimes inflamed, and a blow on the Eye or a bite will have the same effect when there is not the least danger of Blindness.

It is not therefore always the clearness of the Eye that denotes its goodness, but a Man is also ^{know-}ledge of ^{the Eyes.} to form his judgment from other indications, particularly from the form and manner of the Eye, which includes not only the Body of the Eye but the Eye-Lids, Eye-Brows, and all the parts belonging to it. Many good ey'd Horses have a heaviness in their countenance with a Lowering-Brow, yet great numbers of this aspect go blind with Cataracts when they are about seven years old, or between seven and eight, and sometimes later. These are the most suspicious where there is a Bunch or fullness between the upper Eye-Lid and the Eye-Brow, with a fullness round the under Eye-Lid; so that the Eye appears as if it was inviron'd in a Ring. Such Horses are often fleshy about the Head and Jaws, which, upon every cold, or other slight accident, exposes them to defluxions on their Eyes. ^{Their several defects.}

When the Eye is extremely flat or sunk within its orbit, it is always a bad sign, even tho' there be no defluxion or humour upon it: A small pig Eye is none of the best, nor a very large gogling Eye. The one often perishes for want of nourishment, occasion'd by some defect in the Nerves or the Arteries that supply it with Blood; the other by being too much exposed to accidents, and by having too great supplies of nourishment.

That

That Eye is almost always weak which is of a longish oval Figure, especially where the two corners are narrow like the shape of an almond. When the coat or membrane that rises from the under part of the Eye happens to be large and thick so as to press the Eye-Ball, and the caruncle or kernel on the inward corner next the Nose is spongy and moist, tho' there is sometimes a remedy for this defect, yet such Horses in the end generally go blind.

When the eyes are bad, the Muscles or movers of the Eyes are generally weak ; so if the Eye looks dead and lifeless, the best way of trial is to hold up the Horse's head in the same manner as when a drench is to be given, which will draw the Eye upwards ; and if it remains there fixed and immoveable, or has a languid motion, it is a pretty sure sign the Eye is bad. And this trial will, for the most part, hold good whether the Eye be moist or dry.

Some regard the colour of the Eye, which however is different according to the difference of colour in Horses ; and indeed we are so far to regard the colour, that if the Iris or circle that surrounds the Pupil or sight of the Eye be distinct, and of a pale variegated cinnamon colour, it always denotes a good Eye. For the Iris is always most distinct where the humours of the Eye are most clear and pellucid, and those Horses have the best Eyes which in colour resemble the Eyes of a sheep or goat ; but few Horses arrive to that perfection of colour and transparency till they are at least six years old or upwards. On the other hand, if the
the

the Iris or circle round the Pupil be of a dark muddy colour, and does not appear distinct and variegated till one approaches near the Eye, and if the narrow sky-coloured Verge (which we observe more or less in most Horses on the outside of the Iris) happens to be of a milky hue, it is no good sign. Nevertheless wall-ey'd Horses have for the most part good Eyes.

Some in examining the Eyes have a regard to the colour of the Horse, which I take to be no sure way of judging, for as there are good Horses of all colours, so there are good Ey'd Horses of all colours. The Grey, especially the Pidgeon or Dove-coloured Grey, are the most suspected, also the Iron-Grey, and the Dun, &c. But I think I may say from Experience, that whatever colour is the most common among Horses, so as to exceed in number, abounds most with bad Eyes. And I have observed as many bad ey'd Horses among the Black coach breed as any other.

Most people in examining a Horse's Eyes ^{The best} lead him under a Gateway or some shade, that ^{Way of} they may see perfectly the colour and transpa- ^{examining} rency of the Eye: but the best way is to observe ^{a Horse's} his countenance when he comes first out of a dark stable into a strong light; for if he has any weakness in his Eyes he will wrinkle his Brow, and look upwards to receive more light; and if the Pupil at the same time be large it is a bad sign; and therefore the best way is to look to a Horse's Eyes first in the shade, to observe the dimensions of the Pupil, and if that lessens upon his ^{Eyes.} coming out into a strong light, it

is almost an infallible sign that the Eye is good.

Some suspect all Horses that startle to have bad Eyes; indeed many bad Ey'd Horses are apt to startle: But a Horse that stares and looks upwards, lifting his Feet high when he moves, and as if afraid to touch the Ground, such is more likely to have bad Eyes than one that startles; for many Horses startle merely out of fear, and I imagine not a few from some defect in vision, *viz.* from seeing objects indistinctly at some distance, in all which cases the Eyes may be strong and durable, tho' many fancy them to be weak. But if a Horse frequently startles when no object is before him that might cause him to startle, we may then suspect his Eyes to be but indifferent.

Upon the whole, that Eye is generally good where the Eyelids are thin, where the outward coat or Tunicle of the Eye is also thin and delicate, where the Caruncle next the Nose is small and dry, where the Eye is transparent and sprightly, when a Horse has a bold resolute look, and takes notice of objects without fear. On the other hand, when a Horse moves his Ears backward and forwards, and seems surpris'd at every noise or motion of the Hand; when he raises his Feet high, is uncertain in his walk or step, and unequal in his goings, when his Eyes appear full and swoln with a fleshy circle round them, or when they are sunk or flat, or of a longish oval figure, when the outer coat is thick and covers a great part of the Eye-Ball, and the Glands or Kernels of the Eye are spongy
and

and moist, all these denote the badness of the Eyes, and are often the forerunners of Blindness.

The next thing to be regarded in the chusing of a Horse is his Feet, that they be good and durable, for bad Feet in a Horse is like a House that has a weak foundation, for such an one will do but little service. I shall not here take much notice of the defects of bad shoeing, or other accidents, for these will be treated of in their proper place, but of those chiefly which are natural to some Horses, that expose them more than others to lameness, or at least makes them unfit for the most common uses, as hunting and travelling.

The knowledge of the Feet is reckon'd more easy than that of the Eyes, and I have seen many guess pretty well of the goodness of a Horse's Feet, without any other examination than just to view them as he stands or walks. However, I would advise no Man to trust to so superficial a judgment, for tho' one may see the form and shape of the Foot to be fair and promising, yet there are other things to be considered, without which a good Horseman may be deceived.

The knowledge of the Feet.

A Horse may have a well-made Foot, and well-proportion'd, and yet if it chance to be thin and weak, the buyer will be disappointed of his expectations, for such a foot is liable to be spoil'd in shoeing, by travelling on hard stony grounds, by too much drought in hot seasons, or by too much moisture in winter. A thin Foot is that where the Crust or horn is thin.

A thin or weak Foot, its defects.

may be easily seen when the Shoe is taken off, because the Verge all round the Soal will appear thin; and where it is so, a Horse will winch with the least touch of the pincers; but as this trial will seldom be allowed in buying of a Horse, the best way to those who would be acquainted with such things, is to observe the bottom of the Crust, which is generally ragged, and where the Shoe-nails are clench'd and riveted: If these be high, it is a token the Foot is thin, and that there has not been sufficient hold for the Nails, without driving them a good way upwards in the Crust. In a thin Foot the Heel and Frog are also apt to be soft and tender to the touch, and by reason of the weakness natural to such kind of Foot, it sometimes turns awry, and one point of the Heel will stand higher than the other, tho' this may be also owing to the crookedness of the Pastern-joints, and will sometimes happen where the Foot is tolerably strong, but is most common to such as have weak Feet; and where it is so, the Horse wears his Shoes more on one side than the other, and often causes him to cut and go lame in a journey.

A very strong or hard Foot. As a thin weak Foot is justly reckoned a very great defect in a Horse, so a very strong Foot is not always the most eligible, but is liable to several accidents. A strong Foot has the Fibres of the Hoof very distinct, and for the most part run in a streight line from the Coronet to the Toe, like the grain of Oak, Lignum Vitæ, or any other hard wood that easily splits; and tho' some such Feet will last very well, and keep

keep free from accidents, where sufficient care is taken to keep them moist and pliable, yet when they happen to be neglected upon a long journey, or much hard riding, especially on dry stony grounds, or when they stand long in a hot dry stable, they will go lame and tender at the same time that no defect is to be seen on the Foot; for when the soft parts within are bruised by the hardness of the Hoof, or by the thickness and hardness of the Sole, which in all such Feet is like a plate of Iron; and when this happens a Horse will be in pain, and the true cause sometimes not found out for a long time, which I have known in several instances; nor is it easy to restore such Feet to a due temperament, as will be shewn hereafter.

When a Horse that has a very strong Foot takes up a Channel-Nail, or happens to be cut into the quick with a sharp Bone, a sharp Flint or piece of Glass, and a flow of humours follows upon such a wound or puncture, the confinement these meet with from the strength of the Foot create much anguish, and for want of vent below frequently causes an eruption round the Coronet, which proves for the most part troublesome, and makes the cure tedious and uncertain, especially when such cases happen to fall into bad hands.

I have known some instances where the Hoof and the Sole have been quite loosened from all their attachments to the Foot, the Filaments and Fibres that unite the horny part to the Flesh being all torn and pull'd asunder by the thickness and strength of the Horn; and where this hap-

pens in any degree it is apt to leave a tenderness behind it, unless an uncommon care be taken to prevent it.

But the greatest inconveniency in a very hard strong Foot, is its being subject to Rents and Fissures, which cleave the Hoof quite thro', sometimes from the Coronet down to the bottom; and this kind of Foot is the more easily exposed to such accidents, that the horny Fibres have a more visible strait direction than where the Feet is more soft and pliable; these clefts being for the most part in the Quarter, seldom admit of any other remedy than extirpating the whole piece that lies next the Heel, which defect is from thence called a false Quarter, wherein the cure is seldom so perfect, especially in the fore Feet, as to leave no infirmity or blemish behind it. When the Fissure or Cleft does not penetrate thro' the Horn, but makes a line on the Surface, it is called a Sand Crack, being very common in some sandy countries, where the Horses Hoofs turn dry and crack with the heat of the sand. These are but little regarded where the lines are superficial and not deep in the Horn, and are often cur'd by rasping the Foot, and keeping it cool and moist. However, it is a defect that must lessen the value of a Horse, in proportion to the degree of goodness or badness of his Foot; for when the Foot happens to be otherwise bad, these blemishes often degenerate and are of ill consequence.

Narrow
Heels.

The next defect I shall take notice of in the Feet, is of those Horses that have narrow Heels,

Heels. Some Horses Feet are tolerably good even where the Heels are narrow, but when the Foot is hot and inclined to rottenness, and the Quarters lose the round turn that they ought to have as they approach the Heel, and look as if they were bent and pinch'd together, inso-much that the Heels of some such Horses are not above two fingers in breadth, then the Foot is bad; and the way that many take to mend these kind of Feet, by hollowing on each side the Frog, and thinning the Quarters to cause them stretch to a wider shoe makes them worse; for the stretching out the Quarters contracts the Hoof on the Instep, and almost always turns such Horses hoof-bound and wire-heel'd.

But Horses often grow hoof-bound from other causes, and in some it proceeds from the shape of the Coffin-Bone, when it happens to be flat or hollow, where it ought to be rising and round, when the Coffin drops by thinning the Sole too much, and not taking care to stay it up with stuffing and splinters, and from diseases in the Feet that leave a weakness and deformity in them. But when a Horse that has a very strong flinty Foot happens to be hoof-bound, the case generally turns out bad. For the harder the Hoof the more it presses round the Instep and Heel. This pressure makes the parts all round the Coronet to grow fleshy and project over the Instep, so as to be constantly bruised by the upper part of the Hoof, especially when a Horse carries any great weight upon him, and by this means in the end ingenders a Quitor, which creeps so under

Binding of
the Hoof.

the Hoof that it can seldom be removed without the loss of a Quarter, the same as when there is a Fissure and Cleft, or rather worse because of the depression and binding all round the upper part of the Foot with the distemperature of the Coronet, which often renders such cures both very tedious and imperfect. Therefore this ought to be well look'd into, especially in chusing a saddle Horse, that his Feet be tolerably shaped, smooth and cool, not narrow-heel'd, nor hoof-bound, neither weak-footed, nor too remarkably strong, for most Horses of this latter kind are also coarse and chiefly fit for labour.

Other defects of the Feet.

Another thing that ought carefully to be look'd into, is that both his fore Feet be of equal size, for wherever this defect is the least apparent, tho' it may proceed from a Horse's using one Leg more than the other, as it happens to working Men who use the right Hand and Arm more than the left; yet when one Foot is smaller than the other, it is a blemish, and carries some doubt that such a Foot may in time fail and perish, even as these do that have been hurt by accidents, or after old lamenesses in the Shoulders, Legs, and muscular parts, where the Foot at last perishes in proportion as the muscular and nervous parts shrink and diminish.

Another defect in Horses Feet, is when they are flat and without depth. If such a Foot happens to be strong and the Hoof smooth, if the Soal be also firm, and the Frog no ways rotten or fleshy, such a Horse will indure the Roads tolerably well. But when a flat Foot is shap'd
like

like an oister, has many rings or wrinkles, if the Soal be soft, and the Frog fleshy and spungy, it is a very great defect. Some Horses are so remarkably faulty in this respect, that the Frog bunches out beyond the bottom Crust of the Hoof, that their Shoes must be made hollow, and the Plates so broad as almost to cover the whole bottoms of their Feet, to keep them from the Ground. But indeed such Horses are only fit for a draught, and not for the Saddle.

Some Horses have tolerably good Feet, only that their Heels are low. Horses that have long yielding Pasterns are the most subject to this defect, and also those that have their Pasterns very small, short, and standing almost quite upright; these have generally long Heels and flat Feet, and their Fore Legs coming streight down from the Shoulder to the Foot, without any bending of the Pasterns, and for this reason are frequently called Goat-leg'd. Many of the Horses bred in the Fens are of this kind, have but an aukward use of their limbs, and make very bad travellers, and those low-heeled Horses which have very long yielding Pasterns, are apt to have their Heels wear quite to nothing upon a journey, and all the care imaginable in shoeing cannot prevent it.

A very high Heel is another extreme which greatly lessens the value of a Horse; for even where such a Foot happens to be strong and smooth, it is nevertheless, the cause of unsteadiness in a Horse's going, exposes him often to trip and stumble, to sprains in the Coffin and Pastern Joints, &c.

There is one kind of Horse, especially among the coach and cart breed, very remarkable for a large deep foot; the Horn extremely thick and scaly, the Heels broad and mouldring, and are apt to grow so very fast, that the Farriers when they go about to shoe such Horses, thinking to ease them of their great load, and to bring their Feet into a better size, pare and rasp them to such a degree, that they leave their Feet much larger about the Coronet and Instep than at the bottom; so that they always look as if they went upon Pattens, which is not only very ugly, but such Horses are seldom good for much.

A very large Foot of any kind is to be avoided in a Horse, even supposing it to be in itself firm and good. But when I speak of a large Foot, I mean only when it is disproportion'd to his other parts, for a large Horse must of course have a larger Foot than a small one. But when we see the Foot large and the Limb small, in all such it must be observed by those who have experience, that the Bones and Sinews are also slender, which not only denotes weakness, but heaviness and inaptitude to any brisk and vigorous action; and are therefore unfit for the Coach or Saddle, but to draw in a Cart or Waggon, or to carry a Burden.

Some object greatly against white Feet, as being generally worse than those of any other colour. Indeed when a Horse has too many of his Feet white, they do not always prove the best, yet I have seen white-footed Horses have their Feet such as the ablest Judges could not find fault with.

with. When a Foot is smooth and tough, of a middle size, without wrinkles, neither too hard and brittle, nor too soft, and when the Heel is firm, open, and no ways spongy or rotten, and the Frog horny and dry, and the Soal somewhat hollow, like the inside of a Dish or Bowl, whatever be the colour, such a Foot will for the most part turn out good, tho' the dark or black Hoof, where it resembles that of a Deer, is generally the best; and for this reason those who are the most curious about a Horse's Feet, do not chuse such as have much white upon their Legs and Pasterns, to avoid their having too many white Feet.

The next thing to be regarded in a Horse is his Shoulders, that they are not too much loaded; for a Horse that has heavy Shoulders can never move well; on the other hand, one that has very thin Shoulders, with a narrow Chest or Bosom, tho' he may move briskly while he keeps sound, yet such Horses are generally weak, and the most easily lam'd in their Shoulders of all others. A narrow-chested Horse turns his Elbows inwards towards his Brisket, and his Toes outwards, crosses his Legs in travelling, and sometimes cuts himself; and these sort of Horses, by their unsteadiness, are as apt to trip and stumble as the Horses that are thick shoulder'd, tho' they do not so easily come down; in the main they are of less value, for if they happen to get lame they are fit for nothing, being weak and slender; whereas thick shoulder'd Horses are generally strong, and if any accident happens that renders them unfit for

The
know-
ledge of
the Shou-
lders.

other uses, they will serve for a Waggon or Team, but a heavy-shoulder'd Horse at best, is neither fit for the Saddle, nor for a Coach, nor indeed for any thing that requires expedition.

But that the Reader may understand what I mean, by a heavy-shoulder'd and thick-shoulder'd Horse, it will be necessary to observe, that some Horses have their Shoulders full, and yet no ways loaded; and when this proceeds only from the largeness of the Bones and Muscles, and when these are firm, and not loose and flabby, such Shoulders will be sufficiently pliable. All the Barbary Horses I have seen are of this kind, and yet most of them have mov'd well in their natural short quick action. But when the Shoulders are loaded with Flesh, and the Breast or Bosom is also fleshy; the Muscles in this case are generally clog'd, which being the instruments of motion, such Horses can never step out with freedom, but as if they went upon Stilts: But the worst sort of all others, are those where the Breast projects and hangs over, so that the fore Legs are placed backwards, and appear as if they were stuck into a Horse's Brisket. A Horse of this make is the most dangerous of all others to the Rider, for when he stumbles it is scarce possible to recover him from falling, because of the backward position of his limbs, and the load that lies forward upon his Breast; and therefore such are absolutely to be rejected.

Fleshy
Shoulders,
of bad
Conse-
quence.

Some Horses are greatly charged with Flesh, or rather may be said to be gross upon the top of their Shoulders and all over their Withers, which

which however is more an inconveniency than any hindrance to their motion, besides that this fleshiness often abates with exercise. It is a blemish more to be observed in Colts and young Horses before they have been hous'd and broke than afterwards. We daily see Horses of this kind whose Shoulders in all other respects are flat and finely made, and move almost as well as those that have no such defects.

It may be observed, that some thick-shoulder'd Horses have also very thick short Necks: These are usually the most fleshy of all others, and are worse than those that are thick shoulder'd, and at the same time small and slender neck'd, having this additional ill quality, that they are almost always heavy upon the hand, and as themselves are soon tir'd, so they soon tire their Riders.

The knowledge of the Shoulders is a thing very material in the choosing of a Horse, because his good or ill Going depends so much upon the make and placing of his Shoulders, tho' those who have had the greatest experience will never fix upon a Horse meerly from the shape of his Shoulders, because in this respect the best judge may be mistaken, unless at the same time he see him move with ease and freedom. Sometimes Horses that have fine Shoulders move but indifferently, which may be owing to an over-great length of their Limbs, humours caus'd by undue exercise or other accidents; and therefore the best way to judge is from the motions of a Horse; make him go at some little distance, and observe whether there

is a correspondence and harmony between the motion of the Shoulders and the motion of the Limbs, for if the Limbs do not harmonize with the Shoulders, but the motion seems to be more in the Limbs than the Shoulders, it is a plain Indication that such a Horse must want freedom in his Shoulders ; but when the Shoulders, Knees, and Pasterns all act together in concert, and have but one spring of motion, then the Horse may be said to move well and with freedom.

The
Limbs.

The next thing to be considered is the Limbs, which ought to be free from Splents and Windgals. The Splents that grow on the flat part of the Shank Bone are of little consequence, otherwise than that they are an Eye-sore ; but when a Splent is situated near the Knee Joint, or below near the Pastern, it may endanger lameness, and if a Horse does not go downright lame with it, he will be exceeding stiff, especially after riding ; but when the Splent lies on the inside between the Bone and the Sinew, that Horse is in danger of incurable Lameness, and his case is the worse, that such a Splent cannot be easily removed without hurting the Sinew.

Splents.

Windgals. Windgals are little loose flatulent Tumours, containing no suppurated matter within them, but a very little Moisture and Air. They are generally situated on each side the back Sinew towards the Heel, sometimes on the Fore Legs, but most frequently behind, and sometimes both before and behind, and are moveable to the touch. The same kind of Tumors are often met with
about

about the Knees and Hocks, but then they are always attended with Lameness. When they come in the Hocks they are generally attended also with a Blood-Spavin or Varicose, as the French more properly term it; but wherever they happen to be, they must lessen the Horse's value exceedingly, being either the effects of weak Limbs, or very hard riding and abuse.

The Limbs should therefore be clean, free from Splints and Windgalls, the Knees should be straight and not bending: It is always a sign of strength and activity when the Shin and Shank are thin, the Back-Sinews strong and well brac'd, with a perceptible distinction between the Sinew and the Bone, so that the small of the Legs be not of too round a make, but according to the Jockey's terms, flat and lathy. The Pastern-joints clean, especially the lower Pasterns, that they may be free from Ring-bones and other swellings near the Coronet, which are sometimes of ill consequence. The Hocks should also be lean and dry, free from Curbs, Spavins of all kinds, and from Puffs and flatulent Swellings, which upon every alternate motion, or upon the pressure of the Finger, shift from side to side; for all these are great faults in a Horse that cannot be easily remedied.

Ring-
bones,
Curbs,&c.

The next thing to be considered is the Body or Carcass, which ought not to be too small and slender; for a small carcass'd Horse is generally weak. On the other hand, a very large carcass'd Horse proves often heavy and unactive, and when he happens to be underlimb'd

The
Carcass.

it

it is reckoned a great Fault, tho' I have known this remark oftentimes fail, and Horses, that have been reckoned very much under-limb'd, prove as strong, and fully as serviceable as any other.

A low Back is another fault that almost every body complains of, and betokens weakness, tho' a moderate sinking below the Withers is not at all amiss when the Back is otherwise streight. When this sinking is to no extream, the Fore-hand generally rises well. But when a Horse has a low Back, and is higher behind than before, it is not only ugly, but such Horses are generally weak, are apt to be pinch'd in their Shoulders, and have an aukward way of going, which is owing to the heaviness of their hind parts, which hinders them getting on.

Some are fond of Horses that are home rib'd, which indeed is a property that denotes both Beauty and Strength, as those that are open rib'd are looked upon to be weak and loose; but in some Horses the short Ribs approach so near the Haunches, that they have scarce liberty to breathe, and such Horses are the most out of wind of any other when put upon hard exercise, and easily go broken winded, as I have often observed. But a Horse that is open and loose in his Flanks, like a Greyhound, is liable to many disadvantages which would be too tedious here to relate; such are always narrow over the Chine, have little or no Belly but what is forced by art and feeding; and tho' we find some of this kind more vigorous than others, and even exceed all expectation, yet the generality of such Horses are seldom fit to carry

carry a great weight, or to hold out in hard riding. Some are great admirers of short-back'd Horses, which is a right way of judging so far as this stands in opposition to a very long Back. But some Horses Backs are so very short, notwithstanding they are otherwise of a good size, that they seem to be drowned under common furniture. But when a tall Horse happens to have a short Carcase, and very long Legs like a Spider, such a Horse is seldom good for much. If a Horse's Back be short, his whole Body and Limbs ought to be short, and then it denotes strength and firmness; but most of these make but a slow progress on a Journey, tho' they will indure and hold out as long as any other, unless they be urg'd on with Horses of greater speed.

It always denotes strength in a Horse when his Carcase is of a moderate size. His Ribs large, his Flanks not hollow but smooth and full, with a straight Back, or but a very little sinking, his hind Parts or uppermost Haunches not rising higher than his Shoulders. A Roach Back, *viz.* where a Horse's Back is a little arch'd behind the Saddle, tho' it adds no great beauty to a Horse, many of this kind being also flat rib'd, yet they are for the most part strong and durable, and often prove fit both for hunting and the road.

Another thing to be regarded in a Horse is his Wind, which may easily be known by the motion of his Flanks, and some other signs. Many Horses breathe thick, and yet are not broken-winded. A thick-winded Horse fetches

A Horse's
Wind to
be regard-
ed.

his Breath often, and sometimes rattles and wheeses. This will happen to any Horse that is foggy and foul fed, without sufficient exercise, especially to Horses that are newly come off rark Pasture, where they have lain long. But if a Horse has been in good keeping, and had due exercise, and yet these symptoms appear, it is to be suspected there is some defect either accidental or natural, such as a narrow Chest, or some obstinate cold that has contaminated his Lungs: This symptom sometimes happens to Horses that are ribb'd home too close, which will cause such to be short breath'd when they are hard rid. But a Horse seldom comes to be thoroughly broken-winded till he is seven or eight years old, the reason of which I shall give hereafter, when I come to treat of those Maladies. In the mean time I shall observe, that the best way to know a broken-winded Horse, is to observe his Flanks while he stands quiet in the Stable. A broken-winded Horse always pinches in his Flanks with a very slow motion and drops them suddenly, which any one with a little observation will easily perceive, and when very bad, coughs vehemently and often farts, with a continual working in his Fundament; his Nostrils also work as if he was in a Fever, and yet no symptoms of great heat and inflammation, and seldom any abatement in his appetite. These are the surest signs to know a broken-winded Horse. In other cases, when a Horse is only thick-winded from any accident or natural defect, the best way to find that out, is to put him into brisk exercise, and he will soon discover his infirmity.

I need say nothing of the Glanders, because few Horses are offered to sale with this Malady. However, one should always feel under a Horse's Jaws, that he be free from inflated Kernels, especially if he be turn'd of seven years old, for at that time there is danger, even tho' there be no running at his Nose. But loose moving Kernels are very common to young Horses when they happen to catch cold, especially those that have never had the Strangles. Nevertheless these symptoms are easily removed, except when the Kernels are fixed to the Jaw Bone, and then they are to be suspected.

Other
Defects in
Horses to
be observ-
ed.

There are many other defects that may be taken notice of in Horses, both with respect to their shape and their action, which very much lessen their value. A Horse that has a large fleshy Head, with a gross thick Neck, will always go heavy on hand, as I have already hinted. Leaf-ear'd Horses that have broad dangling Ears like the Leaves of a Bay-Tree, are altogether ungraceful, and have much of the Cart Breed. A Horse that has a Deer or Stag's Neck, that is when it bunches out with a semi-circle before, and sinks on the Crest where it should rise highest, is not only ugly but unpleasant to the Rider, and the Horse-Courfers are apt to say of such Horses, that their Necks are turn'd the wrong side upwards. A Goose-rump Horse has much of the Cart Breed, and is for the most part stubborn and sluggish. A Horse that has his Hocks distant and very wide, seldom moves well, but is apt to cut and shave by crossing one Leg over the other. On the

other hand, a Cat-ham'd, or Batle-ham'd Horfe, as some term it, *viz.* where the Hocks approach near together, and the Feet stand out wide and straddling, will always appear with a remarkable meanness, if his other parts are never so well moulded, besides that it often denotes weakness. Fleshy-leg'd Horses are usually subject to the Grease, and other infirmities which I shall not here stay to mention.

The
Temper
of Horses.

Vicious
Hefs.

The Temper of a Horse is what ought also to be regarded; because if a Horse's Temper be good it very much enhances his value, whereas if it be vitious it exposes him to many accidents. A sullen ill-condition'd Horse endangers every one that comes near him; and very often will not spare his best friends. Some are only enemies to Men, but with other Horses are tractable and quiet. These have not always the most true courage, as I have often observed. They are continually in motion when any one approaches towards them, expecting to be drub'd, and are therefore in a constant state of enmity and defence. Others are quiet and tractable to Men, and yet are so mischievous to other Horses, that they will scarce suffer any one to come within their reach. Many of this sort have true metal and courage, but expose both themselves and other Horses to kicks and bruises, which prove troublesome and sometimes expensive to the owner, whereas a Horse of the truest courage is usually the best temper'd, loving to his Master and Keeper, and never shews his Metal compleatly, but when he is urg'd on by some noble incentive, *viz.* in

a Chase or running Match, where there are other Competitors ; or when he carries a good Horseman, he will then discover a sort of complacency, and seem to act every way in concert with his Rider. But the Reader will be apt to question, how it is possible for any one to find out the Temper of a Horse without trial ? It must indeed be confessed, that a man who has had but small experience, can know very little of the Temper of a Horse, and even those who have had the most experience, can only guess upon a superficial knowledge of a Horse, so as sometimes to avoid buying such when they are offered to sale ; for some Horses are exceeding sly and subtil, will shew but little of their temper when they are cautiously handled, and yet will steal every opportunity to do mischief, as all who have been us'd much among Horses must have frequently observed. A vicious Horse generally lays back his Ears close to his Pole, tho' this is not always a sure presage of Vice, for some very harmless Creatures lay back their Ears merely out of ticklishness, or from a playful disposition, but at the same time he puts back his Ears will look pleasant with his Eyes, and with his Mouth catch hold of the Crib, whereas a vicious Horse at the same time he lays back his Ears shews the whites of his Eyes, and looks sullen and dogged. Some vicious Horses have a plain manifest frown, which they discover at all times, and give their Countenance such an angry Aspect, as will easily enough be discovered by those who have been us'd among Horses. Besides such Horses al-

ways stand as it were in a posture of defence, having their Heads rais'd and lofty, and one of their hind Legs advanced forwards resting upon the Toe, ready to lash out at the first Person that offers to come near them; and this may further be observed of a very vicious Horse, that he never will give a pleasant look even to the Person that feeds him.

Fear. Fear is another ingredient in a Horse's Temper, that must very much lessen his value. A fearful Horse both endangers himself and his Rider, more than a vicious Horse that has Courage. Almost every day affords us instances of People being hurt, and sometimes killed by fearful startling Horses, and many such Horses are utterly spoil'd and ruin'd, by the accidents their Fear exposes them to. Besides that Fear in a Horse is hardly ever to be overcome until he grows very old and useless, or when he happens to be continually harass'd with travelling, in the constant view of all manner of Objects, and even then any thing new and uncommon will still revive his natural Temper and Disposition. A fearful Horse may be often known at first sight by his startling, crouching and creeping.

Fretfulness A Horse that is very hot and fretful is no less to be avoided. But here I would distinguish between an eager craving Horse, that strives to be the first in the Chase, the foremost in the Field, and one that goes always upon the fret, which is properly what I mean here by a hot Horse. The one goes out calmly, and never shews his metal till a proper opportunity offers.

He

He has those qualities that resemble prudence and courage, the other intemperate heat and rashness. A hot Horse begins to fret the moment he comes out of the Stable, and continues in that humour till he has quite fatigu'd himself, which for the most part soon happens. Such Horses are not able to endure much hardship, being for the most part but poor feeders, and when they come to go a journey they soon lose their Flesh, have a carion-like look; and seldom perform it without intervals of rest. They rarely last long, for this temperature exposes them to many accidents and diseases.

A dull heavy flegmatick Horse, is the very Dullness. reverse of one that is hot and fiery, and his qualities are easily known, notwithstanding all the arts of the Dealer to put life and spirit into him. A sharp pair of Spurs, the frequent cracking of the Whip, a Stimulus under his Tail, will cause him to shew somewhat of metal, and carry himself to the best advantage; but still any tolerable judge will easily perceive that all his action is forced, and no ways natural. He moves as if he was in a hurry, and yet with many tokens of heaviness. Nevertheless some such Horses are of more real value, and last much longer than those that are hot and fretful, because they are seldom hurt with labour, nor expose themselves much to accidents, and if they prove unfit for the Saddle, may be serviceable for many other purposes.

There is another sort of Vice, or rather ill Habit, to which many Horses are addicted, which, ought also to be avoided in choosing a

Crib-biting.

Horse, and with which I shall conclude this part of my Subject, and that is Crib-biting, or the Tick as some call it, *viz.* when Horses catch hold of the Edge of the Manger, suck in the Air and swallow it down in gulps, till they are sometimes so full that they are ready to burst. Some do it only on their Collar Reins, and some on every Post and Gate they can come at. This Vice is more common in London than any where else, and may either come upon Horses from very low feeding, while they are young and have craving Appetites, or perhaps by standing much at the Crib while they are shedding their Teeth, for then their Mouths are hot and their Gums tender and itching, which may readily make them suck in the Air to cool their Mouths; but young Horses are the more apt to imbibe this ill habit, when they stand next those that crib, for I have often observed young Horses take it by imitation, tho' I have also known abundance take to it, that have neither been in the sight or hearing of any other: This is a Vice in a Horse that cannot be easily hid, for he does it openly in his Stall, even tho' he may have been often beat for it. But the best way when one looks into a Horse's Mouth for his Age, is to take notice that his fore Teeth are not worn, for if they be worn, it is a sign he cribs; and when a Horse has been long accustomed to this Vice, the Teeth will not meet in some places by the breadth of one's Finger. The Coach Breed are the most subject to it, and a Horse never loses this ill Habit during his whole life; and indeed all the
methods

methods hitherto used to break it have proved ineffectual. Horses that crib are but of small value; they drop a great part of their Food unchew'd, which makes them almost always look lean and jaded, with a staring Coat, and consequently few of them are able to indure much labour, besides that they are frequently subject to the Gripes and other Maladies, which are owing to their continual sucking and filling themselves with Air.

C H A P. IV.

Of the Shape and Make of a H O R S E, and how his Parts should be framed, in order to appear comely and beautiful, with some Observations on the Colour and Marks of H O R S E S.

TH O' the most experienc'd Horsemen are not always agreed in some points relating to the Shape, Make and Goings of a Horse, yet they almost always accord in this, that there ought to be a just proportion in all his Parts. That even when he is taken to pieces, and examined singly in his particular Members, tho' some defects may appear, yet when they all bear a just correspondence one to another, and concur in such a manner as to render his action easy, just, and regular, such a Horse cannot be greatly disagreeable, but will, for the most part, move well, and with a tolerable good grace. On the other hand, suppose a Horse has some parts exquisitely fine, and others indifferent, which frequently happens, it will mar his beauty,

ty, and cause him to look disagreeable, and for the most part affect his Gait and Action.

The proper shape and make of a good Horse.

In order to have a Horse beautiful and finely made, it has been agreed on all hands, that his Head should not be long nor too large, rather lean than fleshy. His Ears thin and narrow, and of a becoming length, well set on, pointing inwards. His Brow or Forehead not too broad and flat. His Nose somewhat rising and of a good turn, his Nostrils wide and thin, his Muzzle small, his Mouth neither deep nor too shallow, with a Star or Snip down his Forehead, or a Blaze, which is no ways unbecoming, unless it be too large and disproportion'd. Horses that are thus mark'd, have generally one or more of their Feet white, which is also very beautiful and looks lively. His Jaws should be thin and sufficiently wide, not approaching too near together, nor too high upwards towards the Oniet, that he may have sufficient room to carry his Head easy and in good place. His Eyes well formed, sprightly and of a middle size. His Neck should be arched towards the middle, arising by a beautiful gradation out of his Breast and Shoulders, the Muscles thereof distinct, but no where overcharg'd with Flesh, growing smaller and thinner, as it approaches towards his Head. His Shoulders should be thin from the Withers, with a gradual enlargement downwards, that his Bosom or Breast be not too narrow nor too gross. His Fore-Legs streight and well placed: His Joints lean and bony: His Knees not bending, and his Pasterns not too long: His Feet round and smooth, and

and his Sinews firm and well-braced : His Carcase rather round than flat : His Back not too low, and for strength and durableness pretty even and streight. His Ribs rather home than open, as they approach towards his Haunches : His Britch round, and the Muscles not too fleshy but distinct : His Hocks or Gambrels neither standing too wide, nor too near together : His Hocks should be lean and no ways puffed or fleshy : His Pasterns short, his Legs flat and thin, and his Tail set on in a good place, rather high than low, rising upon every motion of his Body. The more these properties concur in any Horse the more beautiful he must be, especially when they correspond and agree in due proportion one to another ; and the more a Horse is wanting in these, the more plain and ordinary he will appear.

I shall now proceed to say something concerning the Marks and Colour of Horses, seeing so much of the beauty of a Horse depends upon his being well-mark'd and of a good colour ; and also because his good or bad properties are sometimes denoted from his being of this or that Colour, or his having such and such Marks. Tho' indeed these signatures are not always to be depended on, for daily experience teaches us, that however true these Observations may prove in the main, yet we often meet with good Horses that are very ill mark'd and of bad colours, and sometimes very bad Horses that have almost all the beauty that colour and marks can give them. However, it is necessary for those who have any concern among

The
Marks
and Co-
lour of
Horses.

The right Properties of HORSES, Part I.

among Horses, to be more or less acquainted with such things.

The
principal
Colours of
Horses.

The chief and principal Colours are the Bay, the Chesnut, the Black, the Brown, the dappled Grey and Sorrel; for the White is for the most part originally Grey, and turns sooner or later into White, as his Limbs happen to be lighter or darker; and the Light Grey Colts that grow the soonest White, have generally little or no dark mixture about their Joints.

The Bay.

The Bays, perhaps so called from their resembling the Colour of dry'd Bay Leaves, are of various degrees, from the lightest Bay to the dark, that approaches the nearest to the Brown, but always more shining and gay. The bright Bay is an exceeding beautiful colour, because a bright Bay Horse has often a reddish dash, with a gilded aspect, his Main and Tail black, with a black or dark Lift down his Back. Also the middle colours of Bay have often the black Lift with black Main and Tail. And the Dark Bays have almost always their Knees and Pasterns black, and we meet with several sorts of Bays, that have their whole Limbs black from their Knees and Hocks downwards. The Bays that have no Lift down their Backs, are for the most part black over their Reins, which goes off by an imperceptible gradation from dark to light towards the Belly and Flanks. Some of these incline to a Brown, and are more or less dappled. The Bay is one of the best Colours, and Horses of all the different kinds of Bays are commonly good, unless when accidents happen to spoil them while they are Colts.

The true Chesnut is generally of one colour, without any shade or gradation : His Hairs are often compounded of three colours, the Root light, the middle dark, and the Points of a pale brown, which makes an agreeable mixture, and differ from the Sorrel in this, that the mixture of the Chesnut is not so distinct and apparent to the Eye, especially at any distance, because the Hairs of the Sorrel are often of several colours intermix'd, wherein the red or Fox colour generally predominate. Many chesnut Horses have their Manes and Tails very near the colour of their Bodies ; many of them have but little White about their Legs, and frequently no mark, whereas the Sorrel have generally a good deal of White about their Legs and Pasterns ; many of the Sorrels have a large Blaze, and not a few are bald all over the Face, while their Manes and Tails are sandy or of a flaxen Colour. Both the Chesnut and Sorrel are of degrees darker and lighter, and I have seen some Chesnut Horses with Manes and Tails as light as the Sorrel, and the Hair all over their Bodies approaching towards a fallow Colour, only with a sort of beautiful Chesnut stain. There are many good and beautiful Horses both of the Chesnut and Sorrel ; but the latter, when they have much White about their Limbs, are apt to be more faulty in their Feet than those that are more uniform in colour, and they are also apt to be more tender in constitution. When a chesnut Horse happens to be bald or party-coloured, or to have white Legs, which may
be

be owing to some extraordinary affection in the Dam, or some improper mixture in the Breed, such Horses are not very agreeable, for Chestnuts are the least tainted in their colour of any other, and most people prefer the Chestnut to the Sorrel, both in point of beauty and goodness.

The
Brown.

The Brown is a colour not altogether so beautiful as the Bay or Chestnut. Horses have also their degrees, some being light and some very dark. They have almost all black Manes and Tails, and often their Joints are black, tho' not so shining as the Bays, but rusty. Almost all brown Horses grow gradually lighter towards their Bellies and Flanks, and many are light about their Muzzles. The most beautiful are those that happen to be finely dappled, for the plain Brown are esteem'd more ordinary. Many of them are coarse, but strong and serviceable, fit for draught, for burden, or for war.

Black Horses are very beautiful, especially when they are of a jet shining black and well mark'd, and have not too much white. For as a great deal of white, especially when it spreads round their Eyes, and a great way up their Legs, adds nothing to their beauty, so neither does it add any thing to their goodness. The English black Horses have more white than the black Horses of any other Country. I have known many fine Spanish Horses, some Arabs, and one Egyptian (the only one I ever saw of that Country) all without any white, and the Dutch and Danish Horses seldom have much; tho' a Star or Blaze, and sometimes a white Muzzle, and one or more of the Feet tip'd

tip'd with white, always looks beautiful and lively, and is no diminution to the goodness of a Horse, but most think an addition, from an opinion that Horses without Mark are generally stubborn and ill-conditioned. Some black Horses have brown Muzzles, are brownish on their Flanks and between their Hips. These are often called black Browns, as they are not a perfect Black, but approach near to the colour of a tawny black Hound; some are of a lighter colour about their Muzzles, and are call'd mealy-mouth'd Horses; and of this sort are the pigeon-ey'd Horses, which have a white Circle round their Eye-Lids, and their Fundaments often white. But after all, I have found many of the English black Horses, especially of the largest breed, not so hardy as the Bays and Chestnuts, &c. Those that partake most of the Brown, are generally the strongest in Constitution.

The Greys are so diversify'd in colour, and so common and well known, that it would be a needless curiosity to describe them particularly. The dappled Greys are reckoned the best, and are to be found in most parts of the World. The silver-Grey is extremely beautiful, and many of them very good. The Iron-Grey with light Mane and Tail have also a gay appearance, but are not accounted the most hardy. The light plain Grey and the Pidgeon-coloured Grey, soon change and turn white, as all other Greys do in process of time. The dappled Grey keeps his first colour the longest, which is a sign of strength and durableness. Some of them

them I have known pretty old before they have chang'd, and never so perfectly as not to retain some vestiges of their native colour. The Nutmeg-Grey, where the Daples and other mixture participates of the Bay or Chestnut, is not only exceeding beautiful, but most of the nutmeg-coloured Horses turn out very hardy and good.

The Roan. The Roans are a mixture of various colours, wherein the white predominates. Many of them turn out much better than they appear to be. Some are exceeding good, and those that have a mixture of the Bay or Nutmeg colour are sometimes tolerably handsome and beautiful. The Roans have a general resemblance to each other, and yet a very great diversity: Some are so strew'd over with white, as if they were powder'd or dusted with Flour, and some as if Milk had been spilt all over their Buttocks. Others as if they were powdered with Soot or Lamp-black, and some as if their Faces had been dip'd in a bag of Soot. Many of them are good road Horses and hardy, which has encouraged this Breed more of late than usual; and I have seen some Roans from abroad that have look'd very well in Furniture.

The Strawberry.

The Strawberry approaches pretty near the Roan in some things, but in most resembles the Sorrel, being often mark'd with white on his Face, and Legs, which we seldom observe perfect without mixture on the Roan. The Bay mixture in the Strawberry is also of the highest colour, and makes him look as if he was tintured with claret; some of this sort are both hand-

handsome and good, but are not very common.

The Fallow colour, the Dun and the Cream ^{The Fallow and Dun, &c.} colour, have all one common resemblance, and most of them have a Lift down their Backs, with their Manes and Tails black. The Mouse, Dun, and Lead colour are the most ordinary, and because the Lift down their Backs goes off with a soft imperceptible shade, like what we observe on the back of an Eel, are from thence called Eel-back'd; few people chuse Dun Horses, tho' I have known Horses of this colour prove useful in the hands of country people. The Fallow and Cream-colour'd Horses are many of them both good and beautiful. Those are generally the best, that besides their Manes and Tails have their Muzzles and their Joints black or chefnut, and their Colour a little inclin'd to chefnut; tho' I have known some with Manes and Tails of a Silver colour, not only extremely beautiful, but very good and useful. The Fallow and Tawny duns are often shaded with a darker colour, and sometimes faintly dappled, and look very fine in a set, when they happen to be well matched.

There are many other colours of Horses produced out of the great diversity that are to be met with every where, which would be endless and of no great use to describe, as the Peach colour, Starling, and Flea-bitten, &c. and all these participate more or less of some of the Colours already mention'd. I shall only farther take notice, that sometimes Horses turn out very finely spotted, some like Leopards or Tygers,

The right Properties of HORSES, Part I.

some like Deer, with black, yellow, red, or other gay Colours, and when these happen also to be comely in shape and appearance, they are generally reserv'd as presents for Princes, or other great Men, tho' perhaps more for their singularity than any superior excellency in them. Others again are so disagreeably diversify'd in their Colours, and in such a remarkable manner, that no Gentleman would care to be seen upon their Backs, or even suffer his Servants to make use of them; wherefore such are usually condemned to the meanest drudgery, and no properties they can have will be sufficient to recommend them to any other use.

The
Marks.

As for Marks, I need say but little concerning them, after what I have already hinted, in describing the Colours. Some have reckon'd Horses to be lucky or unlucky, as they happen to be this or that way mark'd; but I believe few Persons in our times are so superstitious as to regard such things. Others have been so curious as to lay much stress upon them, and to denote all the good or ill qualities of a Horse from his Marks; but as I can say little of this from experience, I shall therefore only take notice, that a Horse always looks the more beautiful for being well mark'd, and a Horse without Marks has always a deadness in his aspect. A

On the
Face.

Star is the most common of all Marks, and where that is wanting, it is often supply'd with an artificial one. When the White descends pretty broad towards the Nose, it is called a Blaze: When it descends into a smaller line it is called a Snip, and when most of a Horse's

Face is white, he is then said to be bald. All these Marks are beautiful when they are not to extremes; for a very large Star is not reckoned so beautiful as one that is of a moderate size, neither is that Baldness that spreads over a Horse's whole Face and Cheeks any ways becoming, as it gives him the looks of an Ox; and such Horses are often plain-headed. When the White of a Horse's Face is divided in the middle, or any other part, or when a Blaze or Snip runs awry to one side, it looks somewhat disagreeable; tho' perhaps it may be no diminution to a Horse's goodness. Some black Horses have their Stars or Blazes fring'd round with a mixture of black Hairs; which looks very well, only such Horses (as I have observ'd already) are apt soon to grow grey fac'd and look old, as are some of the Browns. But when the Bays and Sorrels have their Stars or Blazes fring'd, it is generally with their own colour, or lighter, and seldom has that effect.

Now as to the white Marks upon the Feet ^{On the} and Legs of Horses, they usually correspond ^{Feet and} with the Marks on their Faces. Bald Horses have generally a good deal of White about their Legs, and often all four are white, which in them is not unbecoming. Horses with large Blazes have often all their four Feet white also. But a Horse that has no Mark on his Face, or but a small one, never looks well with white Legs, especially when the White rises above the Fetlock. On the other hand, a bald Horse, or one that has a Blaze without any of his Feet white, is but ill mark'd; and

therefore a Horse always looks best, when there is this correspondence and agreement in the Marks; a Horse that has his near Feet both before and behind White, and his off Feet without any white, is but indifferently mark'd: The same where the Marks are only on the off Feet, without any White on the near Feet. Some dislike Horses for being travers'd or cross mark'd, viz. the near Foot before, and the off Foot behind white, or on the contrary when the off Foot before, and the near Foot behind are only White. These are usually judged to be the best mark'd, that have only the near Foot behind White, or both Feet behind White, or where the near Foot before, and both the hind Feet are White, especially when, at the same time, a Horse has a large radiated Star or a small Blaze on his Face. When the White about the Feet are indented with Black, or any other colour towards the Coronet, these Feet are thought to be generally good, and when the Coronet is spotted like Ermine, the Mark is so much the better. But where a Horse's Pasterns, Hoofs, and all his four Legs are White, especially when the White rises above the Knees or Hocks, it looks ugly, and a Horse thus mark'd has too much of the Pye-bald, which are seldom fit for Gentlemens use.

The
Feather.

The Feather is another kind of distinction which we often observe, especially on Stone Horses, and such Geldings as have short Hair, and are finely coated. Some are of a round Figure, and some long and narrow, in the true penniform Shape, or like an Ear of Barley,

The

Chap. 4. with their Marks and Colour.

53

The round are often on the Forehead, sometimes on the Brisket and Shoulders, and look like Embroidery. Those on the Neck lye immediately under the Mane, and run down towards the Withers. When the Feather happens on both sides the Neck the Mark is reckoned exceeding good and beautiful: Sometimes Feathers run down the fore Arms, and sometimes on the Thigh, and run towards the Dock, and they may be observ'd on several other parts of a Horse. But wherever they happen to be, they are almost always signs of Goodness, and some of them are exceeding beautiful.

PART II.

Of the Anatomy of a HORSE.

Some Preliminaries relating to the Anatomy of a Horse, necessary to the Knowledge of his Diseases.

HAVING, in the first Part of this Treatise, begun with the common Names of the external Parts of a Horse, with other useful things relating to this Subject, I shall now proceed to give an account of his Structure and Mechanism, wherein I shall be as brief as possible, having already treated the Anatomy of a Horse at some length in my *Farriers Guide*. However, I intend to include as much in this place as may be necessary to those who have not time, leisure, or opportunities, to study the knowledge of Anatomy; and shall endeavour to be so plain and easy, that even those who have not had the advantages of a liberal education, may be able from hence to form a tolerable good notion, both how to understand the Diseases of Horses, and the best manner of curing them. In order to which, I shall premise some things by way of Introduction, for the better understanding the Parts and Mechanism of a Horse, as they are anatomically described.

A Horse and all other Animals are in the Embrio first of a soft contexture, which consists of such Properties as in time grows into Flesh, Blood, and Bones, capable of being organiz'd, and animated with proper Life.

The several parts that Horses and all other Animals are made up of.

All the parts of an Animal, from its first rudiment or beginning, is made up of Fibres and Threads, and retain the same contexture in all their changes, whether into Membranes, solid Flesh, or into Bones, or Ligaments, which must be plain to every one that will but take the trouble of a superficial inquiry into such things.

The component parts that produce all the necessary functions of Life, consist of Membranes, Muscles, Glands, or Kernels, Blood Vessels, Lymphaticks, Ligaments, Cartilages, and Bones. Horses and other brute Creatures have also their Hair, partly for a cover to keep them warm, and partly for ornament, as the Hoofs answer to the human Nails, and are a defence to their Feet.

The Membranes are thin expanded Parts, resembling a fine Web, of which the Dura Mater that involves the Brain, is by some reckoned the principal, and to give origin to all the other Membranes of the Body. The Pia Mater, which adheres close to the substance of the Brain, is also a Membrane of singular contrivance and use. All the Muscles and Bones are covered with their proper Membranes, and one very remarkable double Membrane, like a Pillow-bear, involves the whole Guts, which are also in a great measure membranous.

The Muscles are fleshy Bodies, which may be easily separated one from another, being each skinned over with a proper Membrane, with their extremities more or less tendinous and sinewy, and are so commodiously placed by their Origins and Insertions, as to move each respective part to which they belong, and also to act in concert one with another, in all the various motions of the Body.

The Blood-Vessels, consisting of Veins and Arteries, are those Conduits or Pipes, by which the Blood is carry'd from the Heart to all parts of the Body, for its nourishment and support : The Arteries convey it to all the Extremities, and the Veins return it from the Extremities to the Heart ; from whence it is detached back again into all parts, and returned by the Veins, in a continued course of Circulation.

The Lymphatick Vessels carry a lymph or pure Water, separated by the Lymphatick Glands, which is mixed with the Blood to preserve it thin and fluid.

The Nerves are small white Chords or Threads detach'd, from the Brain and Pith of the Back into all parts of the Body, and are the chief Instruments of Sense and Motion.

The Glands or Kernels are made up of Vessels so exquisitely fine and small, that in many of them they are imperceptible to the naked Eye, for the most part rolled up together like a Clue, and are judg'd to be the terminations and endings of Veins and Arteries, whereby some Juices are strained to such transparency and fineness as fits them to be re-united with
the

the Blood ; others only separate excrementitious Matter.

The Ligaments being of a middle nature, between a Sinew and a Gristle, are chiefly of use to tie the Joints together, so as to preserve and keep them in their proper place, without impeding any of their necessary Motions.

A Gristle or Cartilage is more compact and solid than a Ligament, but not so hard and brittle as a Bone. Where the Cartilages are thin and pointed, as the short Ribs, &c. they are endow'd with a spring or elasticity, by which they cannot be so easily broke as if they were of a harder consistence. They are also of use to cover the ends of the Bones, to preserve them from wearing, and to facilitate their Motions.

The Bones are the hardest of all the parts of an animal Body : They are insensible of Pain, as are also the Ligaments and Cartilages, except when they turn carious by inveterate or long continued Diseases : They are the chief supporters of the whole animal Fabrick, to which they also give Shape, and are like Levers for the Muscles to play upon, being united together by many Junctures, for the conveniency of Motion. I shall therefore begin with a short Description of the Bones, and proceed to the other Parts, in their proper Order.

C H A P. I.

Of the Bones of a HORSE, with the
Ligaments and Cartilages.

The
Bones of
the Head.

THE first that naturally offer to be describ'd are the Bones of the Head, which, including those peculiar to the Skull, and those that are common to it and the upper Jaw, are reckoned seventeen in number. But I shall chiefly take notice of those that are the most observable and plain to be seen. The Head has first of all the frontal or forehead Bone, which makes the Brow, and in Colts and almost all other young animals, is divided by a Seam down the middle, which in time totally wears out: The two side Bones, called the *Parietal* or Walls, are divided by a Seam which reaches along the middle of the Head from the Forehead to the Occipital or Noll Bone: These are small in a Horse in proportion to what they are in Man, because the greatest bulk of a Horse's Head lies forward. All the Bones of the Head are join'd together by Sutures or Seams indent-ed into each other, which is the only way by which the Bones of that Figure could be united, so as to answer all the Functions of the Head and Brain. Besides these principal Bones are the temporal Bones, which are not indent-ed as the other, but are joined to each side by apposition, and are fix'd by a gummy cement to the circumambient Bones of the Head. They are thick and very hard in their middle and low-

er

Fig. I.

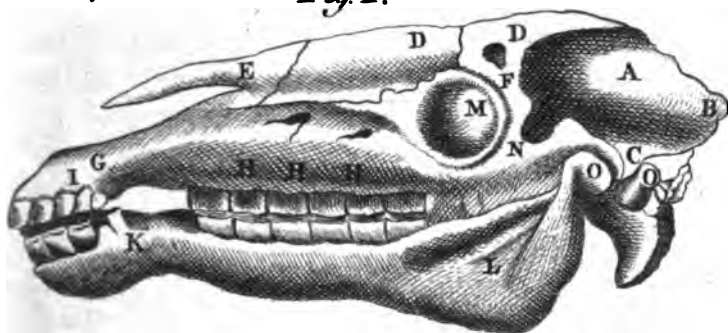
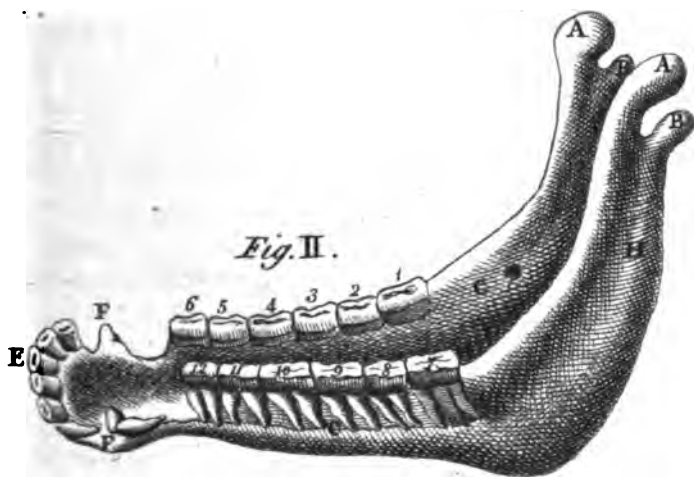


Fig. II.





er part, but grow thinner, especially round their upper Edges. The Bones common to the Head and upper Jaw, are the wedge Bone, the yoke-like Bone, and the *Os Cribriforme* or sieve-like Bone. The other eight that make up the number seventeen, belong to the Ear, which form the Organs of hearing, and lie within the temporal Bones, *viz.* four on each side.

There are several Blood-Vessels that have their passage thro' the Seams of the Skull, by which the Blood has its egress and regress from the Brain to the external parts of the Head, and from thence back to the Brain: And besides the Vessels that pass thro' the Sutures, there are Holes and Perforations in divers parts of the Skull, for others that are spread both externally and internally upon the Head and Brain, and particularly five very distinct ones in the *Occiput* or Noll Bone, besides its great perforation towards its bottom, by which the spinal Marrow or Pith passes downwards, thro' the Bones of the Back. There are also many Holes thro' the *Os Cribriforme*, towards the Nose and the larger Emunctories, for the Passage of several Nerves and Blood-Vessels, with others towards the Eyes and Ears.

On the inside of the Bones of the Skull, are several Sinus's or Impressions and Furrows made by the larger Vessels of the *Dura Mater*, or uppermost Membrane of the Brain, which Vessels form these Lodgments in the Fœtus before the Skull acquires its hardness, by which these Vessels are afterwards preserved from external Injuries. The inside of the Skull is also in many other places full of unevenness, made
by

by the form of the cortical part of the Brain, whereby we may easily perceive that the Skull or *Cranium* is a proper Helmet or Defence for the Brain; and likewise that the Brain must have its perfect Form prior to the Skull, which at first is itself but a Membrane like a Bag, and becomes bony by degrees; for if the Bones, especially those of the Head, were to grow hard before the Birth, it would be difficult for any Creature to be brought forth without manifest danger.

It may also be observed, with respect to the accretion and growth of the Bones of the Skull, that they begin always to turn bony towards their middle or most protuberating part, and so dilate their hardness by degrees to the Edges, where they are join'd and indented into one another; which kind of Mechanism prevents many accidents to which all young animals are exposed. But afterwards the Bones of a Horse's Head grow so extremely hard, that no head Saw is able to part them asunder, unless it be contrived much stronger than those commonly used by Anatomists. The Meditullium, or middle substance between the two Plates of the Skull, is scarce to be found in adult or full-aged Horses, but both its Tablatures seem to be united into one, except over the Eyes, on the lower part of the frontal Bone, or on the inside where there are large Sinus's or Furrows; by which means a Horse's Head is well fenced against Blows and other accidents: But towards the Nose the Bones are more spongy, and made up of several Cartilages which are very tender and sensible; and we often

TAB. II. p. 60.

Fig. I.

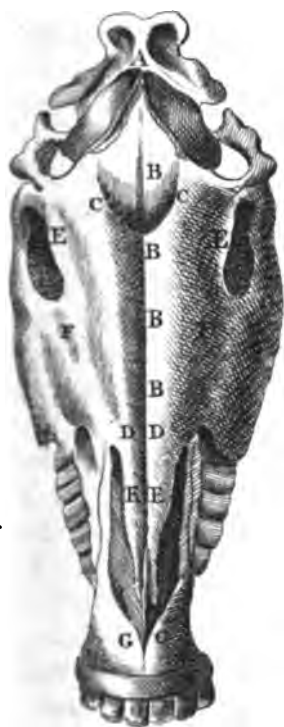
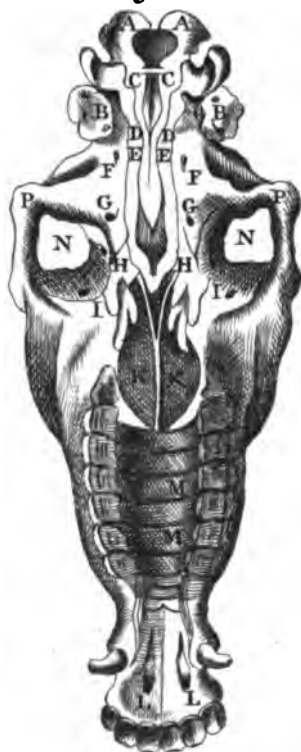


Fig. II.





often observe brutish People in their passion beat their Horses over the Nose, as the surest way to gratify their revenge, when they happen to be dull or obstinate.

The wedge-like Bone, or the *Cunifforme*, as the Anatomists call it, is join'd before to the frontal or forehead Bone, and behind to the lower part of the *occipital* or noll Bone, and so makes the bottom or basis of the Skull, like a wedge between it and the upper Jaw. It has several Holes or Perforations which give passage to the Carotide Artery and Jugular Vein, the principal Blood-Vessels belonging to the Head. The *Os Cribriforme* or sieve-like Bone, already mentioned, gives a passage to several Blood-Vessels and Nerves; some to the Nose, some to the Eyes, and some to the Ears, and contribute to the Senses of seeing, hearing, and smelling, and also divides the Nostrils, and has several cavities filled with spongy Flesh.

The upper Jaw-Bone is joined to these, and has a little Process that passes to the lower part of the Orbit of the Eye, which forms part of that Orbit. The Cheek Bone, which is also part of the upper Jaw, has a very large sinus or hollow below the Eye, on each side, which in a Horse is divided by four bony Partitions that open into the Nose; there is also a little Hole on each side, thro' each of which an excretory Duct or little Pipe passes, to carry off the superfluous Moisture from the Kernels or Glands on the inner corners of the Eyes, and when these are stop'd the Kernels grow spongy, are soak'd with Moisture, and breed the

the Distemper called the Haw. On the lower part are the Alveoli or Sockets for the teeth, which, including the Tusshes, are twenty in number, *viz.* six fore Teeth and twelve double Teeth, backwards called the Grinders, *viz.* six on each side.

The lower Jaw differs from the upper in that it is moveable, being joined and articulated into the Sinus's of the lower part of the temporal Bone. In young Animals it is divided between the Fore-Teeth so as the Bones may be easily parted asunder. On its lower Edge it is round and smooth, and hollow within, containing several Cells filled with a medullary Substance or Marrow. Thro' it are several Holes; and under the Teeth Sinus's for the passage of Nerves and Blood-Vessels. The middle or flat part is more solid, and along the inward Edge are the Alveoli or Sockets for the Teeth, which are the same as in the upper Jaw, *viz.* six forward, two Tusshes, and six on each side backward, making in all, above and below, forty in number.

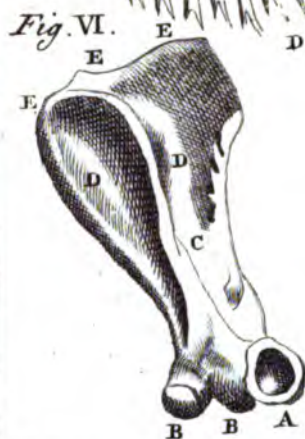
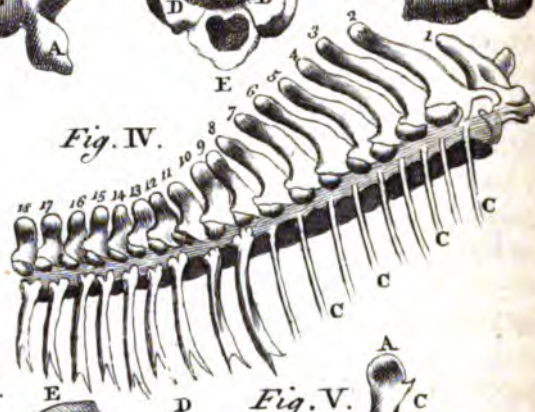
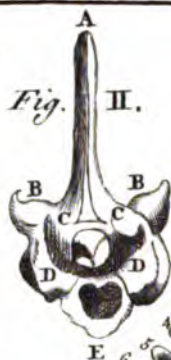
The Bone of the Tongue called the Os Hyoides, from the resemblance it has to the Greek Letter *υ* *ypsilon*, has its proper Muscles, which take their rise, or are inserted into it, besides others that go to the Palate and Larynx, or Head of the Windpipe, which also have their Origin from this Bone.

The
Vertebræ
or Rack
Bones.

The Vertebræ or Rack Bones come next to be described; the Neck has seven Vertebræ, the Back seventeen; the Loins have seven; the Croup six, and the Rump or Tail eighteen.

The





The Vertebrae of the Neck have their Spines round and smooth, with a hollowness between them on each side for the Muscles and Ligaments, which fill up their Cavities; the uppermost has a Process that is received by the second; upon which the Head turns from side to side, like a Door upon its Hinges, and yet is so fixed to the Head by Muscles and Ligaments, that it cannot go beyond its Limits. The seventeen Vertebrae or Joints of the Back are different from those of the Neck, having their Spines very high, especially on the Withers, which rise archwise, and are like a Pallisade or Rail. These Spines are pretty solid in the middle, and of a contexture like the Ribs, only that their Tops are broad, soft and spongy, covered with a very smooth and strong Ligament, to keep them united, and preserve the Back from being bruised. Below and beyond the Withers, and along the Seat, the Spines are shorter and of equal height, till they approach towards the Loins, where they rise higher, especially they are very conspicuous in rock-back'd Horses; but behind they are more level, as they descend towards the Rump. Every one of these Bones, from the first Vertebrae of the Neck to the last of the Loins, has a large Perforation for the Pith of the Back, which descends from the Brain, and passes downwards to the Rump, where it ends. The Bones of the Tail are eighteen in number: They have no Pith within them, as those above describ'd, and therefore are not perforated, but are without any Bore: They are soft and spongy, and more loosely joined together,

The
Vertebrae
of the
Neck,
Back and
Loins.

ther, with very soft yielding Cartilages, so that they may be easily separated and curtail'd in any part without danger; they are also the better fitted to motion, wherein the Tail answers all the Motions of a Horse. They are large towards the Rump, and short, but grow gradually smaller and longer, till they end in a Point.

The
Collar
Bones.

The Collar-Bones are two in number, in the shape of an Italick *s*, viz. one on each side; by one End they are united to the uppermost Rack-Bones, and by the other to the upper part of the Sternon or Breast-Bone, by little Heads which enter into the Cavities of these Bones; whereas those in Men are joined to the Shoulder, and assist in its Motion by a particular Mechanism, which I need not here describe; but in a Horse they are of use to support the Shoulder-Blades, and keep them from sliding forwards.

The Ribs.

The Ribs, in all thirty-four in number, are distinguished by the true and false. The true are the uppermost nine on each side, which are also joined to the Rack-Bones of the Back, and to the Breast-Bone incompassing the whole upper Cavity. The Breast-Bone in a Horse, and many other Quadrupeds, is shap'd somewhat like the Bottom of a Ship. It is at first spongy, but in time grows pretty hard, and has along its two Sides cartilaginous Dents or Impressions, where it receives the Ends of the true Ribs. The Part which reaches towards the Pit of the Stomach, is called the *Cartilago Ensisformis*, or Sword-like Cartilage, having

having a point resembling that of a sword. The false Ribs are in number eight on each side: They are not so strong and rigid as the true Ribs, and grow shorter as they approach towards the Loins, leaving an opening for the Stomach and Belly. The Shape of a Horse's Belly depends much upon the length or shortness of these Ribs; for the larger they are in compass, a Horse looks the more round, and when they are very short, such Horses can never carry a good Belly. All the Ribs are thick and strong towards the Back, but towards the Brisket and Belly they are thin and flat; whereby they are endowed with a kind of spring, which enables them to dilate and contract in respiration, and when they are well-proportion'd, add considerably to the goodness of a Horse's Wind. All the Ribs on their inside are exquisitely smooth, and covered with a membrane resembling the finest satin, that the Heart, Lungs, and other Viscera, may not be hurt by their hardness.

The Shoulder Blade-Bone lies like a shield from below the Withers, to the point of the *Os Humeri* or Shoulder-Bone, which Bone turns backwards to the Elbow, forming an angle. The Blade has a high Spine or Ridge along its middle on the outside, and is joined to the Ribs by its Muscles, which have very strong Tendons. The lower end has a slender Cavity which receives the round head of the Shoulder-Bone, and because of its shallowness is invironed with a very tough cartilaginous substance, and covered over with a broad and very

The
Shoulder-
Blade.

strong Ligament like a purse, which not only prevents the round Head of the Shoulder-Bone from slipping out, but gives the Shoulder an easy play, and adapts it all to its necessary Motions.

The Os
humeri, or
Shoulder-
Bone.

The Shoulder-Bone in a Horse, and most Quadrupeds, is very short from the Shoulder to the Elbow, where it is joined to the *Cubit* or Fore-Leg by strong Ligaments. It has at its lower end two Processes, and on the hinder and upper Part of the Leg-Bone is a high thin Process, which enters between these two Processes, and makes the Elbow-Joint; and the high thin Process forms the Point of the Elbow, and as it rises higher than the Articulation of the Joint, prevents the Leg turning backwards by a counter-motion.

The Leg-
Bone, with
those of
the Feet
and Pa-
sterns.

The Leg-Bone is joined at the Knee to the Shank, which Bones receive, and are received into one another: This Joint has two ranges of little Bones within the bending of the Knee, viz. three in the first Range, and four in the second, which not only strengthen that Joint, which could have no stability without them, but render its Motions (which consist only of bending and extension) more safe and easy: These are knit together by Ligaments that are partly tendinous and partly cartilaginous.

The Shank is that Bone which reaches from the Knee to the great Pastern. It is composed of three Bones, one large, the other two resemble Bodkins, being thick and roundish upwards, but small downwards. The great Pastern has three small Processes, which are received into three Cavities of the Shank Bone,

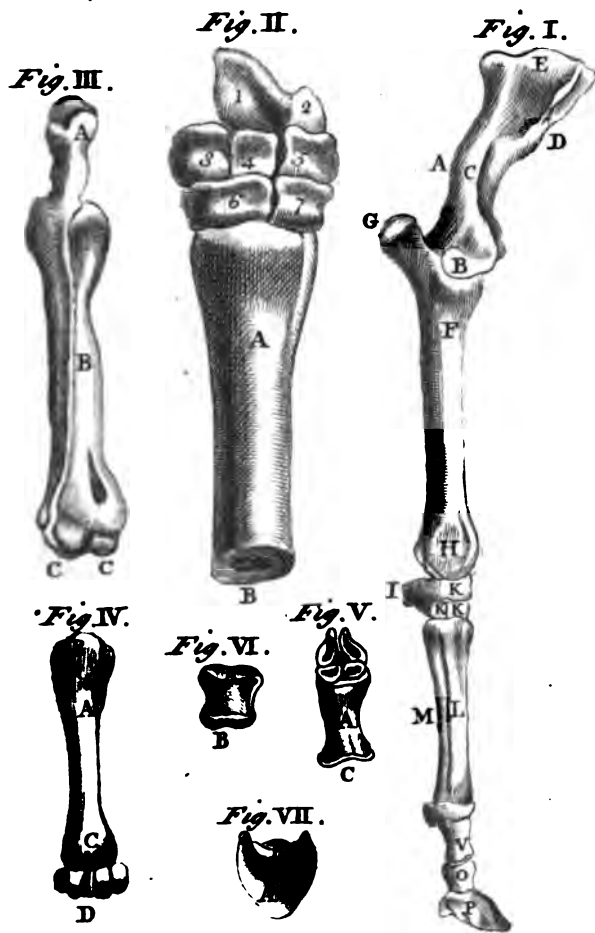






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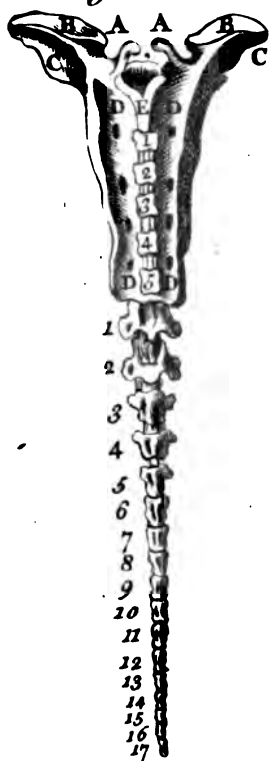
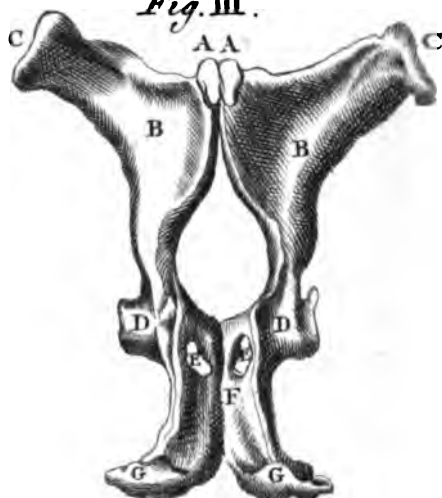


Fig. I.



Fig. III.



and two Cavities, which receive two Processes of the same Bone, and has two small triangular Bones fastened to its back part, which form the Fetlock, and are also like a Stay to preserve the Joint from false Motions, which would very much strain the Ligaments. The little Pastern is joined to the great Pastern in so curious a manner, that to the Eye both seem to be but one. By this Juncture the Pasterns yield and give way, when a Horse is pressed with a great weight upon his Back, which otherwise by their position would be apt to break. The lower end of the lesser Pastern is articulated, and joined to the Coffin-Bone by two Heads, and to the upper or greater Pastern in the same manner as it is received into the Coffin-Bone.

The Coffin-Bone is that which lies within the Hoof as in a Coffin; it is round upwards where it receives the little Pastern, but grows broader and thinner towards its Bottom; it is of a porous open contexture, like a piece of Loaf-Sugar, and is easily pierced, and often wounded when Horses happen to take up nails or other sharp things in the streets, to which accidents they are often liable, and are more easily cur'd than if that Bone was hard and solid.

The Bones of the hind Parts of a Horse, are the *Osso Innominata*, divided into the Hip, Haunch, and Share-Bones. The first is the *Os Ilium*, so called from the Gut Ilium that lies under it. The second is the *Pubis*, which makes a small arch at the extremity of the lower Belly, thro' which the Yard passes, at the

Bones of
the hind
Parts.

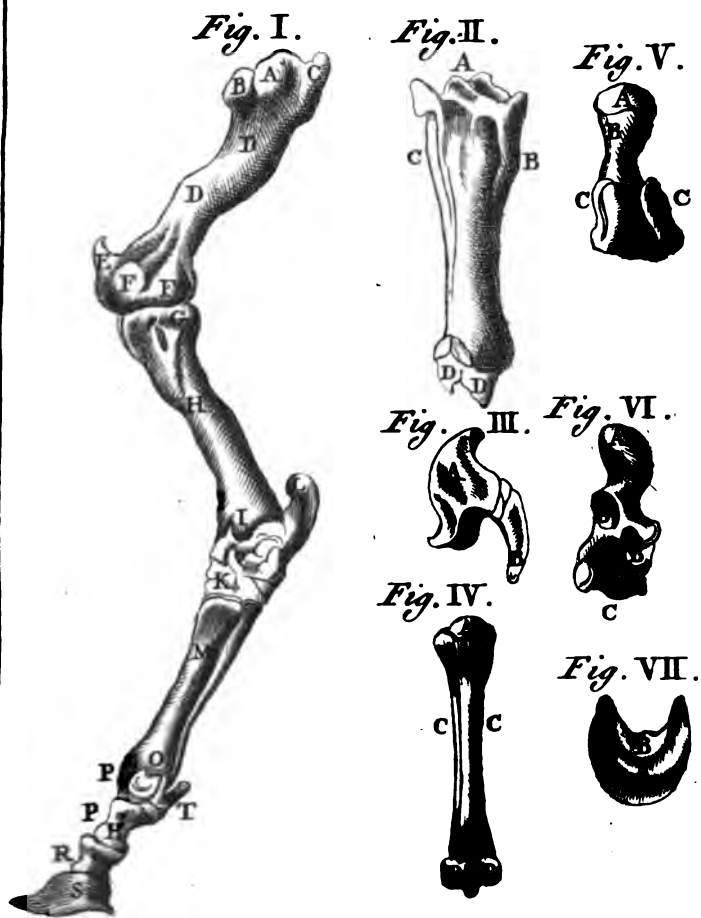
entrance of which is the Neck of the Bladder. The third is called the *Iscbium* or Coxendix, and has on each side a large round Cavity, which receive the round Heads of the Thigh-Bones. These Bones are joined on their Back, or upper part of the *Os Sacrum*, by Cartilages, or Gristles, which in time grow so hard, that they can scarce be separated. The *Os Sacrum* is the Bone that lies under the Crupper next the Rump, which with the *Ossa Innominata*, form the Pelvis or Basin. It is also joined to the lowest Rack Bone of the Loins, and with the uppermost Bone of the Rump.

The
Whirl-
Bone.

The Thigh-Bone reaches from the Hip to the Stifle. Its upper Head is round and somewhat longish, that it may the better fill up the Acetabulum, or Cup of the Hip-Bone, and as it turns backwards and forwards within this Cup or Cavity, upon the alternate motions of a Horse's Leg, it is therefore in common phrase called the Whirl-Bone. The lower end of this Bone has two Processes like a Pulley, between which is a large space that receives the Protuberance of the Leg-Bone, which is the Bone that reaches from the Stifle to the Hock; there is a middle space pretty large and deep between these two Bones, where they join, that receives the under side of the Stifle Bone, which is the Knee-Pan of a Horse.

The
Stifle.

The Stifle-Bone or Knee-Pan, is prominent on the outside, with some Asperities for the insertion of the Muscles of the Thigh, and on its inside curv'd and smooth, exactly answering to fill up the Space between the two Bones above described.



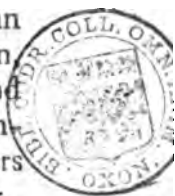


described. It is kept in its place by a strong Ligament, that rises from the upper end of the Bone of the Leg, and is inserted into its lower end below its middle, and by the Tendons of the Muscles of the Thigh, which are inserted into its upper end, and by a broad, strong ligamentous Substance, which is expanded all over it, so that it cannot be easily dislocated with the most violent Force, neither can it be so readily fractured as a Man's Knee-Pan because of its convexity. It is very strong and solid, like a piece of flint, has no cavity within it, and but very little porous, which renders it the more fit for all the motions of the Leg.

The small Bones of the Hock, are in number the same with those of the Knee, *viz.* three in the first Range, and four in the second; they are also articulated with the Instep, as those in the Knee are with the Shank: They are extremely smooth, so as to facilitate the motion of the Joint, and preserve a Horse's Legs from doubling under him when he is put upon his Haunches, and give a kind of spring in vaulting, leaping, or any other forcible action of the hind Legs.

The Instep is made of three Bones, which are so closely united, that they seem to be but one, and cannot be easily separated, much in the same manner as the Shank-Bone already described. The Pasterns and Coffin-Bone, agree also in every respect with those of the fore Feet.

The Hoofs are a bundle of Husks, which cover the *Papillæ pyramidales* of the Skin, on

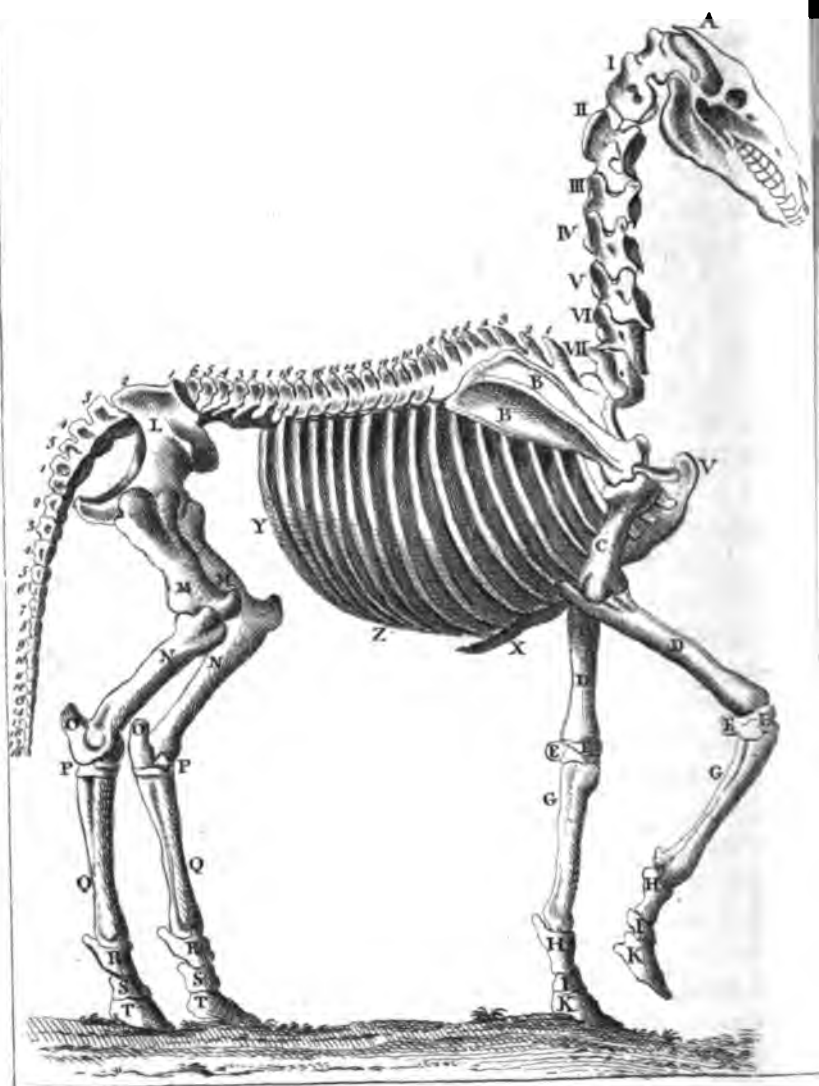


the extremities of the Feet, which dry, harden, and lie close one upon another. They are without Sense, that they may endure travelling among Stones, and in rough Ways, and like the Nails of Men, are continually growing, by which means they may be pair'd or cut, as often as they require it. They adhere pretty close to the Foot, and are fastened to the Coffin-Bone by a Ligament that proceeds from their Root, and surrounds it below the Coronet like a piece of tape, which also unites it to the Coronet. Underneath the Hoofs are many Twigs of Nerves, Tendons, and Muscles, which take their course to the bottom of the Foot, and make that fleshy substance that lies between the Sole and the Coffin-Bone.

I shall conclude this short Discourse of the Bones with observing, that all the long Bones, such as the Shoulder and Thigh-Bones, the Bones of the Leg, of the Shank and Instep, are hollow along their middle, and contain a medullary substance or marrow, which serves instead of oil, to keep them from growing too hard and brittle. Towards their extremities, that is at both ends, they are not perforated, but their substance is porous, and their interstices, when cut, are bloody, especially in young animals, which is a great means to prevent their being broke very near the joints, which would almost always intail incurable lameness. Over each end they have an Epiphesis, or cap, covered with a Cartilage or Gristle, to make their action glib and easy, and are insensible, that their motions may induce no pain. The
larger



TAB.VII. p. 71.



larger joints, such as the Shoulder, the Hip, and the Stifle, have not only very strong ligaments, of various contrivance, to keep them in their place, as has been observed, but have Glands or Kernels that separate an oily matter, which continually preserves them moist, otherwise they would soon grow dry, and wear with their frequent friction one upon another. All the Bones have holes or perforations more or less, for the passage of Nerves and Blood-vessels; and in several places besides their common Processes and Protuberances, little asperities and roughnesses, for the origin and insertion of Muscles, which are so situated, as not only to add the greatest beauty, but are the most subservient to their various motions, and all their other appointments.

Where no motion, or but little motion, is intended, the Junctures are more compact, as in the Bones of the Head, the Rack-Bones of the Back and Loins, the Os Sacrum, and Bones of the Hips; and yet all these Junctures are useful and necessary, and contrived with great wisdom; for by the Seams or Sutures of the Head, no fissure or cleft can run quite across, but must terminate at one of these. The Vertebrae, or Joints of the Neck, having no sharp Spines, but being somewhat in resemblance of a Chain, are altogether fitted to give a beautiful turn to the Neck, and to all the necessary motions of the Head. The Vertebrae, or Rack-Bones of the Back, are also so joined with yielding Cartilages, as endues them with such a property as we observe in green saplings, which enables

them to correspond with all the other animal motions, and at the same time, are so confined by their Spines and Processes, and by antagonist Muscles, that they cannot be distorted beyond their proper limits, without great violence; and yet if these were altogether without motion, the whole body must also, in a great measure, be immoveable. On the contrary, the Bones of the Hips, with the Os Sacrum, are joined in so compact a manner, as shews them to have no very great capacity of motion in themselves, but are so placed as to give the greater certainty to the motions of the Hind-legs; and the compactness of the Rack-bones between the Shoulders and the height of their Spines, has the same effect on the Fore-legs; so that there is nothing wanting in the mechanism of the Bones to render all the actions of a Horse compleat and perfect.

C H A P. II.

Of the MUSCLES.

THE Muscles are the instruments of motion, and it is by them that all the motions of every animal body are performed. They are of several kinds; some are long and round, as most of those that move the Limbs, and are broader and flatter at their origins than their insertions, where they run out in shape of a small cord, and form those strong Sinews that are inserted into the Hocks and Pasterns. They are made up of several bundles of fibres or threads,

threads, and all the Muscles of this kind are rectilineal, having their fleshy fibres on their outside gradually shorter than those in the middle, which not only makes them stronger at their insertions, but this contrivance prevents the Limbs being fleshy, which, by any other mechanism, would happen upon every change or alteration in the Blood, and would very much weaken and debilitate those parts, as we see in many instances, where the Muscles of the lower Limbs happen to be fleshy near their insertions.

Many of the other Muscles are more or less flat in their middle, and their origins and insertions are also flattish. Some of these are long and narrow, as the straight Muscles of the Belly, which, because of their thinness and their great length, are tendinous in several parts across their middle; others are tendinous lengthways, and their Fibres run off on each side like a feather, and are therefore called penniform Muscles. Some have both their directions oblique, as the oblique ascending and descending Muscles of the Lower Belly. They are also of different shapes, according to their different uses, and the parts where they are situated, some being triangular, some pyramidal, some indented or toothed like a saw, and some are round and angular like a ring, as the Sphincter Muscles that open and shut the Fundament and Neck of the Bladder; the last of which is more distinct in Horses, and some other large animals, than in the human body.

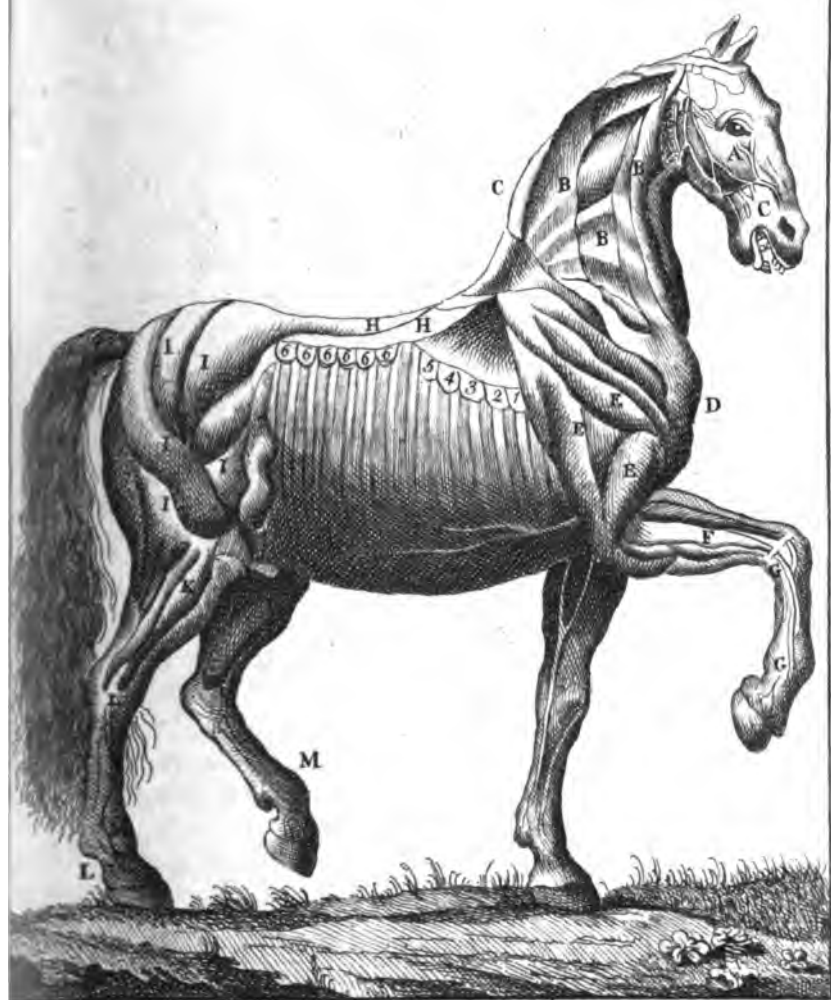
Now,

Now, as to the particular structure and mechanism of the Muscles, it may be observed, that they are all exactly suited to the parts they are to move. Where the motions are not strong, but quick, the Muscles are slender, or short, and sometimes both. Where the motions are strong, the Muscles are not only strong likewise, but are sometimes of great length; being derived from parts at a distance from their insertions, as some of the Muscles of the Shoulder, Neck, and Limbs; and where they are to support or move any great weight by a slower motion, their Tendons and sinewy Parts are extremely strong and firm, and are made up of the Tendons of several Muscles united together in one; as some of those belonging to the Legs, Pasterns, and Hocks, which are actuated by the force of several Muscles joined together towards their insertions. In parts where there is the greatest variety of motions, the Muscles are the most numerous; and where the motions are few, the Muscles are also few in number.

Having premised these things in general concerning the Muscles, I shall now proceed so far into particulars, that those who peruse the ensuing part of this Treatise, may have the better notion of those Distempers, where the Muscles are principally affected.

The Mus- There are a great number of motions pecu-
cles of the liar to the parts belonging to the Head and
Head and Neck, which are therefore supplied with abun-
Neck, and dant of Muscles. The Eyelids have no less than
their sever- three pair of Muscles, and the Eyes seven. One
al mo- pair of the Muscles of the Eyelids opens, and
tions. two
Of the
Eye-lids.

TAB. VIII. p. 74.





two shut them. The one that opens is peculiar to the Eyelid only ; whereas the other two are inserted into both, to bring them together, and to shut the Eye ; and all of them rise from the edge of the hole in the bottom of the Orbit, through which the optick Nerve passes to the Eye. The Muscles of the Forehead, also act by consent, in opening and shutting the Eyelids ; and their Action is most perceivable, when a Horse, or any other creature, is brought out of a dark place into a strong light. But the Eye having a variety of motions, its Muscles are more numerous, to move it upwards, downwards, and sideways, and to roll it about. Horses, and almost all Quadrupeds, have one peculiar to them, which is not to be found in men ; and is therefore called *Septimus Brutorum*. It is short and fleshy, inserted into the hinder part of the Cornea, and not only assists in the tonic motion of the Eye, when all the Muscles of the Eye act in concert together ; but it is necessary to keep the Eye suspended in creatures that feed with their Heads downwards, lest, by their continual and stedfast looking towards the ground, the other Muscles should be weakened ; and the Eyes, by that means, project too far outwards, which would be apt to impair the sight, if not to intail blindness.

Of the
Eye.

The Nose has four pair of Muscles, that widen and contract the Nostrils, which arise from the upper Jaw, and from under the Eyes, and are all of them inserted into the Gristles of the Nostrils, and part of the upper Lip. The action of the Muscles of the Nose is most perceivable,

The Mus-
cles of the
Nose.

perceivable, when Horses are extremely heated with Exercise, in broken-winded Horses, and in all kinds of Fevers, where the Nostrils open and shut more or less, in proportion as a Horse happens to be more or less oppressed with his distemper; and as some of the Muscles of the Lips act also in concert with those of the Nose, therefore, in very extreme cases, the upper Lip is also drawn upward in all the workings of the Nostrils.

Of the Lips. The Lips have five pair that are proper, and two common to the Mouth and Cheeks; some of which compose the fleshy part of the Cheeks. The chief use of these Muscles is to enable a Horse to gather in his Provender; and one pair, particularly, draw the upper Lip directly upwards; which action is plainly visible, when a Horse smells at dung, piss, or any thing that has a pungent scent. There is another remarkable Muscle belonging to the Lips, which assists in all the motions of the Jaw; and as it requires more force in its action, so it takes its origin partly from one of the Vertebrae of the Neck, and partly from the Shoulder-blade, Breast-bone, and Collar-bone, and is inserted into the Chin, Lips, and lower part of the Nose. The rest, by which all the peculiar motions of the Lips are performed, arise only from several parts of the upper and lower Jaw, and are inserted into the orbicular Muscle, which, like a Sphincter, surrounds the Lips at their Extremity.

Of the Jaws- The upper Jaw being of itself incapable of motion, therefore all the Muscles that serve to
open.

open and shut the Mouth, belong properly to the lower Jaw : the chief of which are the Temporal Muscles, which make up the fleshy part of the Temples, and the Muscle already mentioned, that rises from the Neck, Shoulders and Breast ; which being inserted into the Chin and upper Lip, has a considerable share in pulling down the Jaw, so as to open the Mouth, as the Temporal Muscles have the chief share in pulling it up, and shutting the Mouth. There are others that move the Jaws several ways in chewing, and are therefore called the Masseters ; besides these, one Pair thrust the Jaw forwards, and another pull it backwards.

The Tongue is itself a muscular substance, made up of Fibres variously combined together, and in such a manner as may best suit and correspond with all its different motions. The Tongue has five pair of Muscles that are proper to it alone, and two pair that are common to it, and the Bone called the Os Hyoides, which I shall not here particularly describe ; because Wounds, Cankers, or other accidents in the Tongues of Horse, are for the most part easily cured, when proper applications are made use of : I shall therefore only take notice, that some of these Muscles rise from the lower Jaw, or the above-mentioned Bone ; and some that rise from this Bone, have their insertions into the apertures of the lower Jaw-bone. One pair, that pull the Tongue backwards, arise from the Temporal Bones, and are inserted into the Sides of the Tongue ; and another pair

Of the
Tongue.

from the lower Jaw, near the furthestmost grinding Teeth, and are inserted into the Ligament or Bridle of the Tongue ; by which means they are suited to all its various motions. The Muscles common to the Tongue and Os Hyoides, act chiefly in concert with the others, and give the Tongue such motions as forward the aliment into the Gullet, when it is sufficiently chewed, and prepared to pass into the Stomach.

The Larynx.

The Larynx, or head of the Windpipe, has six pair of Muscles, that help to open and shut its Valves, as the air passes and repasses from the Lungs, besides one single Muscle which defends the entrance of the Windpipe from dust, or any other hurtful matter entering into it, by drawing both sides of the ewer-like Gristle together. The Epiglottis, which principally opens and shuts the Windpipe, being itself like a Spring, has therefore its Muscles exceeding small, except in such animals as chew the cud. These Muscles are all more less liable to be affected with violent Colds, that inflame the Lungs, and cause that soreness of the Throat that is observable in some Horses, that hinders them from drinking, and swallowing down their food.

The Pharynx.

The Pharynx, or head of the Gullet, has also its Muscles, which are often affected in Colds. Their office is chiefly to widen and contract the upper Orifice of the Gullet. Another Muscle serves instead of a Sphincter, to purse it up after feeding.

The Muscles of the Ears.

The Muscles of the Ears in Horses are very distinct and perfect, and may be easily traced from

from their origins to their insertions ; but in Men they are very small, because the Ears of Men have but little capacity of motion ; whereas Brute Creatures, being without hands, make use of their Ears to drive away flies, and other things that would be offensive to them. The motion of the Ears is also necessary to Brute Creatures, for the reception of Sounds, especially to Horses that are to be directed by the voice of their Riders or Keepers, and to avoid dangers ; and therefore we may always perceive somewhat of the intentions of a Horse by the motion of his Ears. When a Horse sees any remarkable object before him, he pricks up his Ears, and points them forwards, with an intention to hear, especially when the object is attended with any noise ; and when the noise or sound comes on one side, he turns his Ears that way, to take the sound ; and when the noise is behind him he lays his Ears backwards ; which is most observable in hot or fearful Horses ; for some steddied old Horses, and those of the greatest courage, take but little notice of any object that they see, or any noise they hear, unless it come so near as to give them some disturbance.

The Ear is properly distinguished by the outward and inward. The outward Ear has four Muscles. The first lifts the Ear up, and points it forwards. The second pulls the Ear backwards. The third draws the Ear forward, and points it downward ; and these act together, and move both Ears, when a Horse looks stedfastly to any thing that lies on the ground.

The

The fourth assists the second, and pulls the Ear backward and downward towards the Neck.

When a Horse is wanting in a quick and sprightly motion of his Ears, it is in a great measure owing to the weakness of these Muscles; for this defect is always more or less manifest in those that have their Ears uncommonly large and thick, where perhaps the Muscles are not sufficiently proportioned to the weight they are to move; and these Horses are commonly the most dull and sluggish.

As to the internal Ear, it has two Muscles that move the Drum and Hammer, which are the chief Organs of Hearing, the Sounds being collected in the external Ear, and conveyed from thence into the internal. The first of these Muscles move the Drum upwards. The other rises from the Wedge-bone, and has two small Tendons, one of which is inserted into the upper Process of the Hammer, and the other into the Neck of it. This draws the Hammer obliquely forward and inward; but when a Horse or other Animal, listens attentively to any approaching noise, then both these Muscles act together, and draw the Drum or Tympanum, and all the little Bones of the Ear, alternately upwards and downwards, by which Sounds are distinctly and perfectly heard.

We shall now go on to the Muscles of the Head and Neck, which, in regard of the Parts they have to move, are much stronger and larger than those already described, and most of them have their Origins placed at much greater distances from their Insertions; and by their

all the motions of the Head and Neck are performed, *viz.* forwards, backwards, sideways, and somewhat circular. And to this end, there are four pair of Muscles common to the Head and Neck, and eight pair proper to the Head only. The proper Muscles have some of their Origins from the Breast-bone, Collar-bone, and the Vertebrae, or Rack-bones of the Neck and Chest, and are inserted some into the Occiput, or Noll-bone, and some into the Processes of the two Temporal Bones. Those of the Neck that act in concert with the Muscles of the Head also take their Origins from the Breast-bone, the Spines of the Vertebrae of the Chest and Rack-bones of the Back; and are most of them, by proper gradations, some higher, and some lower, inserted into the transverse Processes of the Bones of the Neck, and with some muscular Expansions between their Processes, make up the Bulk of the Flesh that is on those Parts. These are called the *Interspinales*, and are peculiar to the Neck, as they assist in all its vertebral motions.

From this extraordinary Mechanism of the Muscles of the Head and Neck, and particularly by their remote Origins of the Collar-bone, Breast and Rack-bones of the Back, it appears how much they are suited to the several Articulations of the Joints, so as to secure them from harm in all their various turnings; otherwise, in parts that abound with such numbers of Articulations, though they are well connected and tied together by strong Ligaments, yet a Horse might easily be injured by every

quick motion, and by very slight accidents; and the consequences would often be bad and hazardous, as we see in the Poll-Evil, and other fistulous Ulcers that happen about the Withers, which no doubt would be very frequent, if those parts had not been thus secured; so that they seldom happen, without some violent accident or natural defect, or when they are the Crisis of some Disease, which I have often observed to be the Cause of those Maladies.

The Muscles of the Trunk.

The Muscles of the Trunk, which include all those belonging to respiration, and other important uses, may be divided into those of the Breast and those of the Lower Belly, with the Muscles of the Back and Loins; most of which are also endowed with a very great force.

The Muscles of the Back and Loins.

The Back and Loins have four pair of Muscles, common to both. The first are remarkable for their great Length, extending from the Haunch-bones and Os Sacrum, and reach to the two Temporal Bones, one on each side. These being attached to the Spines in their passage, are a great security to the Back, and assist the other three pair in all its motions. When all the Muscles of the Back and Loins act together, the whole Back is extended; but when the Muscles of either side act singly, the Body is inclined to that side only.

Of the Lower Belly.

The Lower Belly has five pair of Muscles, which arise from the Ribs, Haunch-bone, Share-bone, Breast, and other circumadjacent parts, and are mostly inserted into the white Line that divides the Belly in the middle. One pair





Chap. 2. . Of the MUSCLES.

83

pair pass obliquely downwards; another pair obliquely upwards; a third have a straight direction from the Breast to the Share-bone; a fourth pair assist the straight Muscles in pulling down the Breast; the last are the transverse pair, which take their course from the Loins and lowermost Ribs on each side, to the white Line.

This Partition, or white Line of the Lower Belly, is absolutely necessary for the Origins and Insertions of the Muscles belonging to it; and indeed no other kind of Mechanism could have been so well adapted to a part so large, and of a roundish circumference; for had the Muscles not been determined in the middle, but been stretched over the whole Belly, it would have been impossible for them to have acted with sufficient Force and Energy. The Use of these Muscles is to warm and comfort the Bowels, which are of so tender and delicate a nature, that they have also a Caul or Network of fat, and a thick double Membrane to cover them. They are also of use to make a sufficient pressure for the discharge of the grosser Excrements, and to give some help to the Muscles of the Breast, Midriff, and Ribs, in Respiration.

The Breast has four pair of Muscles that widen and dilate the Chest, and two pair that straiten and compress it. These make up that portion of flesh which covers the Brisket, and all the Breast from the Collar-bone downwards to the Pit of the Stomach, encompassing most of the foremost Ribs. Some of them have

Of the
Breast.

their derivations forwards, and from under the Shoulder-blades and Rack-bones of the Neck and Chest, and some backwards from the Spines of the Rack-bones of the Loins and Os Sacrum; and are most of them so inserted into the Ribs, as to render their action of elevating and depressing the Chest easy and compleat. The Intercostrals are the external and internal, and make up that portion of flesh that fills up the spaces between the Ribs. These also widen and straighten the Ribs alternately in Respiration, and act with the Pectorals and Midriff.

The
Midriff.

The *Diaphragma* Midriff (or Skirt, as some call it in a Horse or Bullock) is a muscular Substance that divides the upper Cavity or Chest from the Lower Belly. It takes its Origin on the right Side, from a Process of the Rack-bones of the Loins, and on the left, from the uppermost of the Loins and lowermost of the Breast; and is inserted into the lower part of the Breast-bone, and the five inferior Ribs, by which it makes several points. The middle is a flat tendinous Substance, from whence the fleshy Fibres begin, and are distributed like Rays from a Center to its Circumference. When this Muscle acts alone, it contracts the Breast, and pulls the Ribs downwards, by which it assists the Muscles of the Lower Belly, in the expulsion of the Fæces; but its chief office is in respiration, to which all the Muscles of the Breast, the Intercostrals, and those of the Lower Belly, are more or less subservient, as has been observed.

In

In all the Actions of Respiration or Breathing, the Muscles of the Breast have the greatest force in Men; but in Horses, and some other Creatures of a prone position, it is evident the Midriff has also a very great force, which seems to be plain in broken-winded Horses; many of which have no other indication of distemper, only that the Midriff is stretched and relaxed in a very extraordinary manner. In such cases, the membranous Fibres are, for the most part, extremely thin, and the tendinous parts, towards their Insertions into the Ribs, very small and feeble; by which means it loses a great deal of that force and spring that is necessary to its action.

When a Horse, or any other animal, receives the air into his Lungs, the Breast and Ribs are distended, which is done by the dilatation of the pectoral Muscles, by the extension of the Intercostals, viz. the Muscles of the Ribs, and by the Midriff, which at that time is drawn out, and expanded to its full dimensions, or in proportion to the quantity of air received into the Lungs. The Muscles of the Lower Belly act also, by their affinity and connexion, with those of the Breast and Ribs; which we perceive more plainly in quadrupeds than in men, where the Lungs are upon a level with the parts of the Lower Belly. On the other hand, when the air passes out of the Lungs, the Muscles that draw in or compress the Breast, and those that compress the Ribs, act alternately with the Extensors of the Breast and Ribs. The Midriff, which is stretched out in time of inspi-

ration, in expiration contracts, and its centre rises upwards like the bottom of a dish. And thus far the Muscles of the Breast and Midriff, and other contiguous parts, may be considered as the instruments of respiration: and, as they are by that means in continual motion, must be endowed with great strength, and maintained with constant nutriment from the Heart, which is seated like a fountain in the centre, and sends forth immediate supplies of Blood into all those parts.

The
Heart.

The Heart is also a Muscle of a conic figure, the shape of which is sufficiently known, being pretty much alike in all creatures. It is composed of Fibres which have a spiral direction, by which it contracts and dilates itself alternately, as it receives the Blood into its Ventricles from the Veins, and as it disgorges the Blood into the Arteries.

The Mus-
cles of the
Stomach
and Guts.

The Stomach and Guts have each a muscular coat; that of the Stomach to assist digestion, and the muscular coats of the Guts, to forward the aliment and fæces through the Intestines to their expulsion; which coats being of themselves but weak, and extremely thin, are therefore helped by the pressure of the Muscles of the Lower Belly.

The Anus, or Fundament, has a Sphincter Muscle seated at the extremity of the straight Gut, made up of circular Fibres, and encompassing it like a ring, which opens and shuts the Fundament, with the assistance of a Muscle called its Levator, which also preserves the Gut from falling out. This rises from the Ligaments

Chap. 2. Of the MUSCLES.

87

ments of the Hip-bones and *Os Sacrum*, and is inserted into the said Sphincter.

The Bladder has also its Sphincter Muscle, that the Urine may not pass involuntarily, as happens sometimes when it is wounded or much relaxed. The Yard has its Erectors and Dilators, and the Stones their Cremaster, and Mares have also Muscles belonging to their urinary and genital parts, which I need not here describe, but shall go on to the Muscles of the Shoulders; the knowledge of which being necessary for understanding the lamenesses, and other accidents, that happen so frequently in those parts.

The Shoulder-blades have four pair of Muscles suited to their several motions. The first are the *Cucullares*, so called from their resembling a monk's hood or cowl. These being seated between the Shoulders, cover the top of the Withers; and, when they happen to be fleshy, cause that thickness we observe on those parts, more on some Horses than others. They arise from the hind part of the Head, from slender beginnings, and grow broader as they descend downwards to their insertion in the Spine or Ridge of the Shoulder-blades, the Collar and Shoulder-bones. The next pair are the *Levatores*, or Lifters up, which cover the Collar-bones, arising from some of the transverse processes of the Neck; terminating in the fore-part of the Shoulder-blades, and draw them upwards and forwards. The third pair lie under the Pectoral Muscles, springing from the four uppermost Ribs, are inserted into the Anchor process of the Blade-

The Muscles of the Shoulders.

bone. These move the Shoulder-blades forwards towards the Chest. The last pair lie under the broadest part of the Cucullares above described, rising from the lowermost Spines of the Neck and uppermost of the Breast, and are inserted into the basis or bottom of the Shoulder-blades, by very strong Tendons, which fix them to the Ribs. These draw the Shoulder-blades somewhat upwards and backwards. Many of the Shoulder-lamenesses in Horses proceed from Strains or other grievances and defects in these Muscles.

The Shoulder, *viz.* that part which reaches from the point of the Blade to the Elbow, has nine Muscles, which ought also to be well considered in all the lamenesses of the Shoulder: for the articulation of the Shoulder and the disposition of the Muscles in Horses, is such, that the Shoulder can hardly be dislocated, as in Men; and if it should happen so at any time, it could scarce ever be remedied; for though a Horse will sometimes appear with a very violent strain, as if his Shoulder-joint was out of place; yet this is only owing to the sudden relaxation of the Muscles and Ligaments, and the influx of the Blood and Juices in such quantity, as not only swells and misshapes the part, but renders it incapable of its true motions; and therefore the mechanism of the Shoulder, and Shoulder-blades, ought to be well understood by those who practise Farriery.

The first of the Shoulder-muscles rises from the Collar-bone, and passing over part of the Blade, is inserted into the Shoulder-bone about
its

its middle. This Muscle helps to lift the Shoulder upwards. The second rises from the Spine or Ridge of the Shoulder-blade, and is inserted into the Neck of the Shoulder-bone, by a strong and broad Tendon. This also helps to raise up the Shoulder, and both give their assistance in its circular motions, so far as it is capable. The two Depressors pull the Shoulder downwards. The first has its origin from the *Os Sacrum*, near the Rump, from the Haunch-bone and Rack-bones of the Back, and, with its fellow on the other side, spreads over a great part of the Back; from whence it is called *Latissimus Dorsi*, or the broadest Muscle of the Back. The other rises from the lower side of the Shoulder-blade, and is inserted into the upper and inner side of the Shoulder-bone. The two pair that bring the Shoulder forward, are the pectoral Muscles, and those which Signiors *Ruini* and *Snape* improperly call the *Cariocoides*, in regard a Horse, nor scarce any other quadruped, has that Process which in Men is called *Cariocoides*. It rises from the interior part of the Blade-bone, near its brim, and is inserted into the middle of the Shoulder-bone. The pectoral Muscles are so called, because they cover most of the Breast, and are inserted into each Shoulder-bone a little below their round Heads. The remaining three Muscles move the Shoulder backwards. The first has its origin from under the Spine of the Blade-bone, and is inserted into one of the Ligaments of the Shoulder-bone. The second is placed between the Shoulder-blade and Ribs, and is inserted into

into another Ligament of the Shoulder-bone. The last rises from the lower angle of the Blade-bone, and is inserted into the Neck of the Shoulder-bone.

The motions of the Shoulders in Horses, and in most quadrupeds, are more limited than in men, their chief action being forwards and backwards, wherein they have a capacity of being raised higher or lower, according to their several requirements. A Horse's Shoulders also move a little space outwards and inwards, which is necessary to their going on uneven ways. They have likewise some capacity of a circular rotation, which, however, is but small, and when a Horse performs any thing by such motions, it is, for the most part, more owing to art than to nature, *viz.* when his Shoulders have been well supled by a good horseman, that is, when the Muscles and Ligaments have been stretched, and rendered pliable, by a skilful management of the rider in long continued exercise; and therefore, when a Horse is brought to perform any of those genteel easy airs, which we observe in the Manege, especially when they go through their exercises in narrow circles; though the Shoulders have a great share in these exercises, and some Horses are much more suited to them, by the symmetry of their Shoulders, than others, yet all the Joints of the Neck, Back, and Loins, must also contribute more or less thereunto. The Shoulder-blades of a Horse lie like two shields on each side, which confine the actions of his Shoulders very much to straight motions; whereas in men, they are placed behind.



TAB. X. p. 91.



Chap. 2. Of the MUSCLES.

91

hind, so that they leave the actions of the Shoulders and Arms without such restraint. In a Horse, the Collar-bone is fixed, and in a great measure immoveable; but, in man, it is articulated with the Shoulder-blade, and participates more or less in all its motions; whereby a man is enabled to turn his arms several different ways; for which motions quadrupeds have no proper capacity.

The Fore-leg is raised upwards by two Muscles. The first takes its beginning from the upper brim and anchor-like Process of the Blade-bone, the second from the middle of the Shoulder-bone, and are both inserted into the inside of the Knee, a little above the Joint. Two Muscles also extend the Leg, and bring it straight; one of which has its origin from the lower edge of the Blade bone, and the other from the Shoulder-bone, and are both inserted into the outside a little above the Knee. These, with two other small Muscles, compose the fleshy part of the Arm, which reaches from the Elbow to the Knee, and perform all the motions of the Fore-leg, falling short of the number of Muscles that are in the arm of a man, a Horse having but one Bone, and but two perfect motions; whereas, in a man, there are two Bones, the *Radius* and *Ulna*, by which the hand and arm are turned various ways; and therefore require more Muscles to perform so many different actions.

The Muscles of the Fore-leg.

The Shank, which reaches from the Knee to the Pastern, has two Muscles that bend the Knee, and two that extend it. The Benders

Of the Shank.

rise

rise from the inner knobs of the Shoulder-bone, and, passing beyond the Knee on the inside, are inserted into the hinder-part of the top of the Shank. The Extenders derive their Origins from the outer knob or process of the Shoulder-bone, and their Tendons passing over the Knee, are inserted into the fore-part of the Head of the Shank, and, with the Ligaments to which they adhere, compose the tough substance that covers the Knee. These extend the Leg, when a Horse puts his Leg out streight, or stands on the ground.

Of the
Fore-pa-
sterns, &c.

The Fore-pasterns, and Coffin-joints have only, as the Leg and Shank, two Flexors and two Extensors; these being sufficient for all the motions of the Feet; and that these motions may be the more perfect and secure, the Benders, or Flexors, are so contrived, that the first reaches from the Shoulder downwards to the hinder part of the Pastern-joint, where it is inserted. The Tendon of this Muscle forms the Back-sinew of the Fore-leg. The other takes its origin from the upper part of the Cubit, or Shank-bone, and is inserted into the Coffin-bone. The first that extends the Pasterns, springs from the outer knob of the Shoulder-bone, and is inserted into the fore and outer part of the Pasterns, and into the Coffin-bone. The other rises fleshy, from the inner knob or process of the Shoulder-bone, but soon grows into a slender Tendon, which descends to the bottom of the Foot, where it has a fleshy expansion under the Sole, which is often attended with exquisite pain, when it happens to be bruised or hurt.



Fig. I.

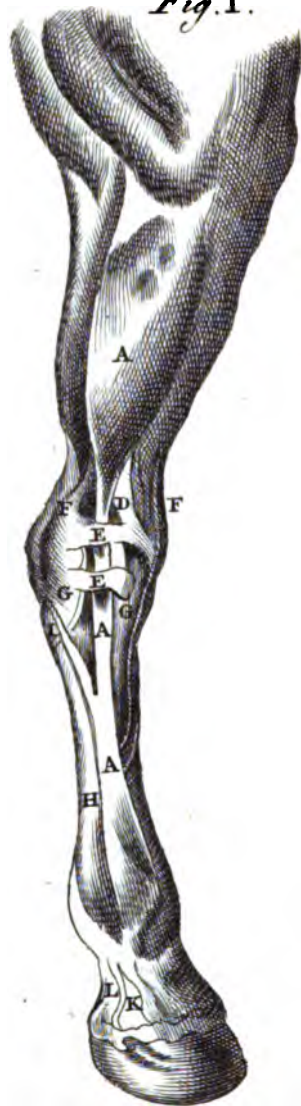


Fig. II.



Towards the Instep forwards, and in the bending of the Pastern behind, is a small but strong Ligament like a ring, under which the Tendons of the Muscles that pass to the Pastern and Coffin-bone, are secured, so as to preserve their motions; which, considering the great length of these Tendons, would be much weaker, and scarce of any use, without such a contrivance.

As to the Muscles of the Hind-parts, they are not only more numerous about the Hips and Loins, than about the Shoulders, a Horse having a greater diversity in his motions behind than before, but are also endowed with greater force; and this seems to be the more necessary, because many of the Services required of them depend very much on the strength and activity of the Hind-parts. Also it may be observed, when a Horse is under no restraint, but at his full liberty, he always makes use of his Heels for his defence, wherein he exercises such strength and force, when he lashes out, as is scarce to be imagined.

The Thigh, which reaches from the Huckle or Whirl-bone to the Stifle or Knee-pan, is moved by several Muscles. Three bend the Thigh forwards, or lift it upwards, viz. when the Stifle is raised towards the Belly, and three draw it backwards. The Thigh is also turned inwards by one Muscle, which has several origins, and is turned outwards by four Muscles. The first of the Benders of the Thigh rises from the transverse Processes of the lowermost Vertebrae of the Chest, below the Withers, and

The Mus-
cles of the
Hindparts

The Mus-
cles of the
Thigh.

wards the inside. The Tendons of these Muscles, especially of the last three, compose that strong Cap or cover which lies over the Kneepan, bracing it so firmly, that it is almost impossible to displace it. These Muscles not only extend the Leg streight, but when some of them act singly, turn it a little sideways.

The two first Benders of the Leg make up the bulk of Flesh that is on the hind part of the Thigh. They both arise from the knob of the *Coxendix* or Rump-bone, and are inserted backwards, below the bending of the Leg, behind the Stifle, one on each side. The third rises near the first and second, and the fourth from the middle of the Share-bone, and passing downwards between the other two, are inserted into the back part of the Leg-bone towards its middle, which gives it the force that is necessary to lift up the Leg, so as to bring the Hock towards the Hip. When these Muscles act together, they draw the Leg directly backwards, but when they act singly, especially the two first, they incline it to this or that side. There is besides a fifth Muscle, which contributes chiefly to the oblique motions of the Leg, which rises broad and nervous from the outer Head of the Thigh-bone, and passing obliquely down the Thigh, is inserted into the hinder part of the upper prominence of the *Tibia* or Leg-Bone.

Of the
Instep.

The Muscles of the lower part of the Leg or Instep, come next to be described. The Instep comprehends all that part which reaches from the Hock to the Pastern-Joint, usually called

called the Small of the Leg. It has three several Motions, *viz.* it is bended, extended, and moved a little sideways. A Horse bends his hind Legs when he goes on his Haunches, or when he lifts up his hind Legs in any kind of Motion; and this is performed chiefly by two Muscles. The first rises fleshy, from the upper Appendage or Apiphisis of the Leg-bone, a little below the Stifle, cleaving close to that Bone in its descent, and passing beyond the gristly part of the Hock, is divided into two small Tendons, that are inserted into the fore-side of the Instep-bone, whereby it raises the Instep and Foot upwards, at which time the Hock is also bended. The second takes its origin likewise from the upper Appendix of the Leg, a little below the Stifle, and is inserted into the outside of the Instep bone, by which it assists the other in raising the Instep and Foot upwards, and also inclines it somewhat outwards. The Muscles that extend the lower Leg and Foot, are three in number, and make up the greatest portion of Flesh, which reaches from the Stifle to the Hock, and which is usually named the Thigh of a Horse. These three Muscles answering both in their number, resemblance and use, to those of the Calf of a Man's Leg; the first rises by two beginnings, from the inner and outer Head of the Thigh-bone, and corresponds with the *Gastrocnemius externus*, and the second with the *internus*, which lying under the first, both their Tendons unite with the third, which answers to the *Plantaris*. The Tendons of these three

Muscles joining together form the Master-Sinew, which is implanted into the back part of the Ham or Heel of the Hock, and answers to the *Tendo Achillis* in the human Heel. By these three Muscles a Horse extends his Leg, and stretches it out streight. The last of these, viz. the *Plantaris* or Muscle of the Sole or Tread, leaves the other two at the Heel of the Hock, and passing sinewy along the hind part of the Instep-bone and Pastern, is braced down at the bending of the Heel by the annular Ligament, and then turning fleshy, is spread all over the bottom of the Foot under the Sole in the same manner as the *Palmaris* abovementioned; in the Description of the Fore Foot. The two Muscles that move the Leg and Foot sideways, have their Origins, the first from the upper end of the Leg-bone below the Stiffle, its use being to turn the Foot inwards, and the other rising from the hinder part of the same Bone, and passing along the outside of the Hock, is inserted into the Coffin-bone, and turns the Foot obliquely outwards.

Of the
Hind-
Patterns,
and Coffin
Joint.

The last of the Muscles, are those that bend and extend the Pasterns and Coffin-joint. The Benders are two, the first rises from the upper and hinder-part of the Leg-bone, and passing down the Instep and Pasterns, is inserted into the Coffin-bone; the second rises a little below the Hock, and is also inserted into the Coffin-bone. These bend the Pasterns and Coffin backwards. The Extensors are also two, the first rises from the inside of the Shank a little below the Stiffle; the second from the fore-part

part of the annular Ligament, on the upper part of the Pastern-joint, and are both inserted into the Coffin-bone; these extend the Foot, and plant it streight upon the Ground. The number of Tendons, Nerves, and Blood Vessels inserted into the Coffin-bone, occasions many untowardly accidents in the Feet of Horses, which sometimes cannot be easily cured without the severest Treatment.

C H A P. III.

Of the Hair, Cuticula or Scarfskin, the Cutis or Hide, the fleshy Pannicle, and other Integuments of the Body of a Horse.

I Need not detain the Reader with any Curio-^{The Hair.}sities about the Hair, since every one knows that the Hair is not only a defence, but an ornament, especially to those fine Horses that have good Manes and Tails. The Hair is thought to be produced of Moisture; and it may be observed, the Hair is thicker, and lies smoother in young Horses, than on the old that have less moisture; and when the Skin has been wounded, burnt or scalded, so as to alter its Texture by contracting the Fibres into a smooth, glossy Scar, or Cicatrix, the part either remains altogether bare, or if any Hair grows, it generally comes white, and not so strong and thick as on the other parts, that have received no injury.

The Cuticula or Scarfskin, is the uppermost ^{The Cu-}cover thro' which the Hair grows. It is extend-^{ticula or}ed ^{Scarfskin.}

ed over the whole Skin; and is that which rises into a Blister, when any part has been burnt or scalded, and when the Blood in the external parts happens to be inflamed to any extraordinary degree, as in the Farcy, and other distempers of the Skin. The Cuticula has been observed by Glasses, to be made up wholly of Scales, which are full of Poruli or little Holes infinitely small, for the passage of the perspirable matter in Transpiration, which discharge is so necessary to the preservation of Health, that when these Pores are stop'd by Colds or any accident, Fevers, and other sicknesses generally ensue. The Cuticula seems to be form'd of a Mucus, or Moisture that comes from the Skin, condens'd by the Air, and as it is chiefly made of excrementitious Matter, it is by that means insensible of Pain, or any other sensation. And whatever pain, or feeling of any kind, in an animal Body, is transmitted thro' it, by reason of its rare and exquisitely fine Texture.

The Cutis
or Hide.

The Cutis or Hide, which lies under the Cuticula, is a strong membranous substance, made up of compact Fibres laid close together, and is susceptible of Pain upon the least touch, when the Cuticula or Scarfskin is any ways fretted or rubbed off, by reason of the innumerable branches of Nerves, which are distributed over its whole surface. Beneath the Skin are seated the miliary Glands, which are exceeding small and numerous, and separate the sweat, which rises like a dew thro' the Pores of the Skin and Scarfskin.

Horses,

Horses, and several other large animals, have besides the *Cuticula* and Skin, a fleshy expansion, which lies immediately under the latter, called the fleshy Pannicle, and is made up of muscular Fibres, whereby the Skin is moved and drawn into Wrinkles, to shake off Dust, Flies, or any thing else that hangs loose upon the Hair. It is most thick and distinct over the Ribs, Flanks, Sides of the Belly, as also on both sides the Neck, but adheres so to the Skin, that it is scarce to be distinguished from it, but where the Skin is loose and moveable. It is also a great defence, and serves to keep a Horse warm in very cold Weather.

Underneath the fleshy Pannicle lies the *Membrana Adiposa*, made up of little Cells filled with Fat, and in some diseased Horses are very much distended with Water. These Cells seem to have communication one with another, or at least their Membranes are so thin, that they are easily separated, and laid open one into another, which may be perceived, by blowing into them with a Blow-Pipe; and I have known Horses stak'd near the Brisket, where the Wounds being pretty large, have drawn in such a quantity of air, that it has filled the whole Body, to a very surprising degree, which were recovered first by a plentiful discharge of air and water, and at last of well digested matter. This Membrane is thickest on the lower Belly and Hips, between the Interstices of the large Muscles, and in some very fat Horses; it is also pretty thick on the Neck and Cheeks, but grows thin about the Limbs,

and other bony and dry parts. The use of this Fat is various, it serves to warm and comfort the Parts to which it adheres, to lubricate the Muscles, so as to preserve them from being abraded and worn by their frequent Motions, for every one knows that a Horse always indures labour the better when he is in Flesh, and has a moderate degree of Fat; but when a Horse is over-loaded with Fat he moves heavily, like a piece of clock-work that has been too much oil'd : for the same that helps to keep the Fibres of the Muscles moist and pliable, and fit for action, when it superabounds, relaxes and clogs their motions. Besides this use of the Fat, it is is probable, some portion of it is drawn back into the Mass of Blood, perhaps to preserve it from viscid Cohesions, and I am the more apt to think there is such a communication, because I have observ'd the Blood-Vessels extremely filled with Fat in Horses, that have dy'd suddenly after violent exercise in hot Weather, whereof I shall give some account in the ensuing part of this Treatise.

The
common
Mem-
brane
of the
Muscles.

The last or innermost Cover, which some have reckoned among the Integuments, is the common Membrane of the Muscles, from a supposition, that all the Muscles of the outward parts of the Body, are wrap'd up in one Membrane, that serves as a common cover to the whole; but this cannot be easily distinguished from the proper Membranes of the Muscles, which have all of them a communication one with another, by innumerable little Filaments or Threads; and as the latest
Anatomists

Anatomists have taken little notice of any such Membrane, it will be unnecessary to detain the Reader with the uncertain Descriptions that others have given of it.

C H A P. IV.



Of the Parts contained in the Lower Belly.

THE first thing that offers to view, in opening into the Lower Belly, is the *Peritonæum*. The Peritonæum. a double Membrane of an oval Figure which covers the whole Guts. Its inside is smooth, and lined with a Mucus, which helps to keep the Guts moist; from this all the parts of the Lower Belly are furnished with their proper Membranes. It has several Ligaments, by which the Guts are ty'd in their proper situation, which preserve them from being intangled by violent motions, and it also affords a strong Ligament to the Liver; and within its Duplicature are a vast number of Vessels, which have communication with all the parts of the lower Belly.

The *Omentum*, or Caul, is a double, thin, transparent Membrane, interlarded with Fat, The Omentum, or Caul. which both serves to keep the Guts warm and to moisten them. It adheres to the bottom of the Stomach, to the Spleen, and hollow side of the Liver, to the Gut Colon, the Sweetbread, and to the beginning of the small Guts, and is embroidered with a great number of Veins and Arteries, that communicate with the Stomach, Spleen, and Guts, &c.

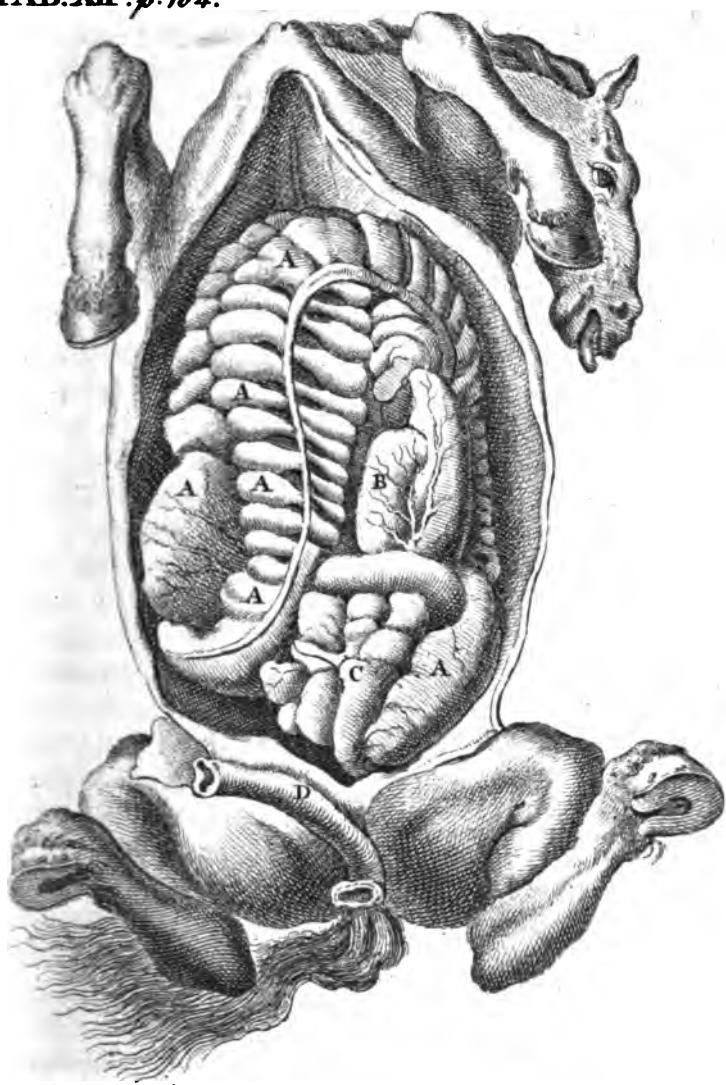
Gullet.

The *Gullet* passes from the Mouth to the Stomach, and therefore cannot well be separated in its description, from the Parts of the lower Belly; it penetrates thro' the opening, or hole of the Midriff, and enters the Stomach on its left side. It is composed of three Coats, the outer, and innermost membranous, and the middle Coat muscular. The Stomach has also the same number of Coats, the external membranous, the middle muscular, and the innermost also membranous. full of small Glands, which separate a Mucus to keep it from growing too dry, that would be a hindrance to digestion, which seems to be partly perform'd, by the Liquids separated from the Glands of the Mouth in chewing, by the Liquids of the Stomach itself, and partly by its muscular Action, whereby it is alternately contracted and dilated, as all other muscular Parts are when the Stomach is contracted, the innermost Coat is drawn into Folds, which are plain to be seen in the Stomach of a Horse, and these Folds increase as the Stomach empties itself, by which it retains the Aliment longer in the latter part of digestion, than after feeding.

The Guts.

The Guts are, according to *Ruini* and *Snape*, reckoned six in Number, viz. The small Gut, which in a Man is divided into the Duodenum, Jejunum, and Ilion, and in a sizeable Horse is about twenty-six yards in length. The *Cæcum* or Blind Gut, the three Colons, and the Streight Gut. The Blind-Gut, which in a Man is not much bigger than a goose-quill, or a common earth-worm, in a Horse is pretty large,

TAB. XII. p. 104.





large, and of a triangular shape, and seems only like a Valve to retain the Aliment, that it may not pass too hastily downwards into the other Guts, before the Body has received its proper nourishment from it. The three Colons are divided by two small Necks of about half a yard in length each. This Gut is drawn up into several *Sacculi* or Purses by two Ligaments, one of which runs along the upper side, and another along the under side, which, with a Valve at the entrance, serve also to detain the Aliment, until the nutritious Juices are wholly extracted from it. The Colons reach to the streight Gut, which is so called because it goes in a streight line, without any circumvolution, or turning along the inside of the Back to the Fundament, and is only about half a yard or little more in length. Its Coats are considerably thicker than the Coats of the other Guts, the middlemost being fleshy and muscular. All the Guts are lined on the inside with a Mucus that preserve them from being hurt by the roughness of their Food, or the acrimony of sharp Humours. They have also several small Glands or Kernels, that separate continual supplies of Moisture, tho' these are so small, that they are scarce to be perceived even in a Horse, except about the extremity of the streight or great Gut.

The Guts are fastened to the Back by the *Mesentery*, which in a Horse is about nine Inches broad from the Guts to the Back, taking its rise from the third *Vertebra* of the Loins, and is made up of three Membranes, the middlemost

The Mesentery.

dilemost of which is full of small Glands and Blood-Vessels. At its rise it is gathered together in a great many Plaits or Folds, which being open in that part to which the Guts adhere, causes them to lie in those circumvolutions and turnings wherein we always observe them, which not only serves to hinder the too sudden descent of the Aliment, but prevents any total obstruction or twisting in them, which, considering their great Length, might easily happen if they were not thus secured. But the Mesentery is still of further use, in regard the finer part of the Aliment is carry'd in certain vessels, that take their course from the small Guts across this Membrane, in order to its conveyance into the Blood. For when the Food is sufficiently digested in the Stomach, it falls into the first Gut, where it is further attenuated by a mixture of Bile from the Liver, and of the pancreatic Juice from the Sweetbread. The finer part thereof being chang'd into a white substance like Milk, call'd Chyle, is strain'd from the coarser Aliment, by the force of the Midriff and Muscles of the Lower Belly, into the abovementioned vessels called the *Lacteal* or milky Vessels. These are very small, and scarce ever to be seen but in Animals opened alive immediately after feeding, where they appear like white Hairs running all across the Mesentery. By these the Chyle or milky Substance is carry'd into a small receptacle, and from thence convey'd thro' a little Tube or Pipe, called the *Thoracick Duct*, upwards along the Thorax or Chest, which has several Valves

The
Lacteal
or Milky
Vessels,
with the
Course of
the Ali-
ment.

Fig. I.

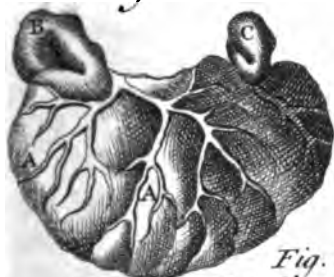


Fig. II.

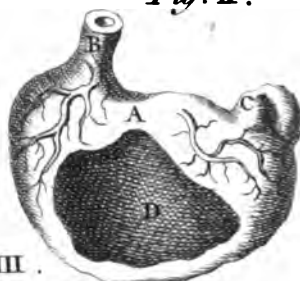
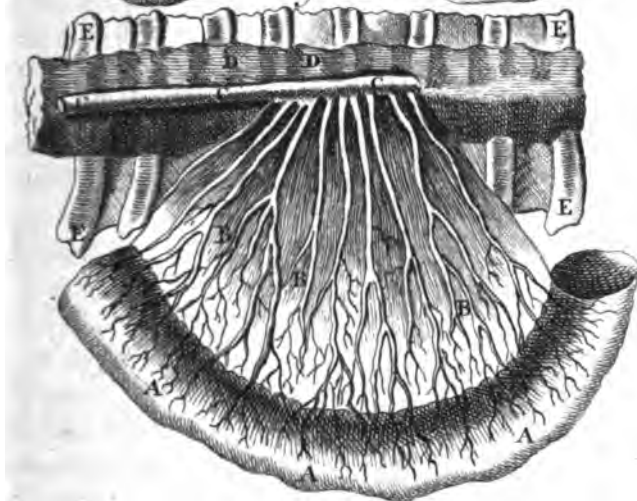


Fig. III.





Chap. 4. The Parts of the Lower Belly.

107

to forward its passage, and prevent its return back again. From the Thoracick Duct, the Chyle is emptied into the subclavian Vein under the Collar-bone, where it mixes with the Blood, and passes from thence to the Heart. There are also a great number of lymphatick Vessels, which empty a pellucid fine Water or Lymph, from the lymphatick Glands that are placed in almost all parts of the Viscera, and is mixed with the Chyle in its passage at several openings, whereby it is further attenuated and rendered more fit to incorporate with the Blood, so as to pass the more readily thro' all the minutest Vessels, in its course of Circulation. The Aliment having the finer Parts or Chyle thus strain'd from it by the Midriff and abdominal Muscles; the remainder being turned into Dung, is by the same force and peristaltick Motion of the Guts pressed downwards to its ejection.

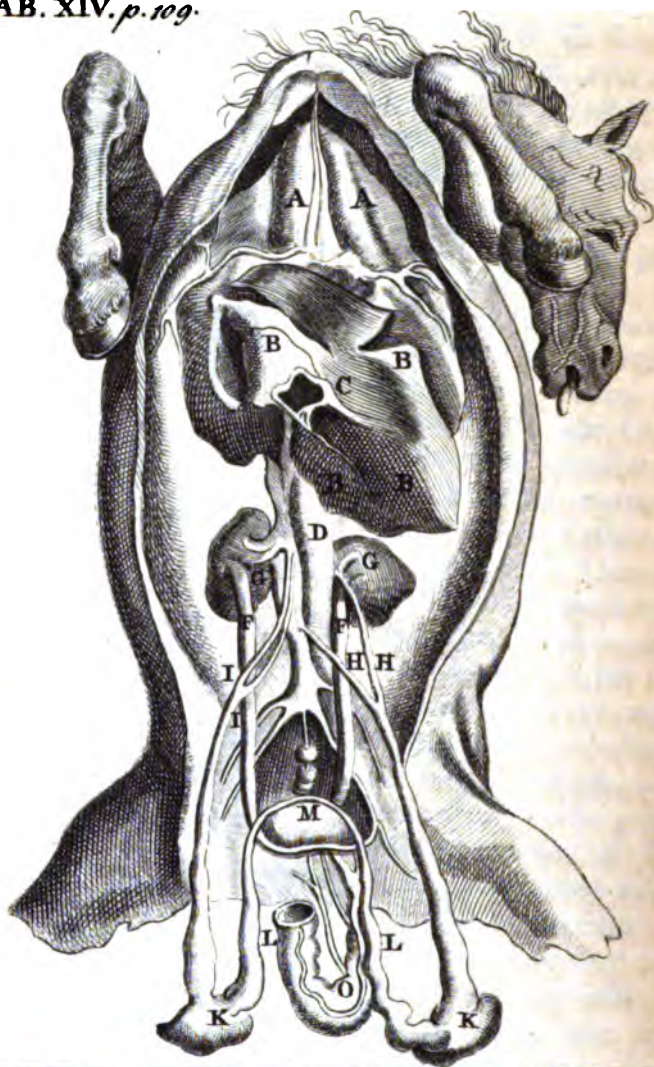
The Liver is a glandular Substance, and by far the largest that is to be met with in the animal Body. It is of a dusky red colour, and in some places a little variegated or shaded. It is seated on the right side of the Belly immediately under the Midriff. In a Horse it is divided into four Lobes, whereby it is preserved from being hurt by any violent Motion. The right Lobe is by far the largest. The outside is convex, and its inside concave or hollow, to make way for that Portion of the Stomach and Guts which lie under it. The upper part is much thicker than its lower, and all its Edges extremely smooth; so that it can be no ways hurtful

hurtful to the other Viscera. It is also secured by Ligaments, one from the Midriff, a second, or a portion of the same, from the Breast-bone, by which means it can neither fall downwards nor sideways, and the Umbilical Vein, whereby the Fœtus is nourished, becomes its suspensory or third Ligament; so that it can neither push forwards in galloping or going down hill, nor press too hard upon the soft parts that lie under it. The Liver has one peculiar Vessel called the *Vena porta*, that receives Blood from the Vessels of the Spleen, Sweetbread, and Guts, which is dispersed thro' its whole substance, and emptied into the *Vena Cava* that returns it to the Heart. It has also its proper Vessels by which it is nourished and maintain'd. One use of the Liver is to warm and comfort the lower part of the Stomach, and other *Viscera*, and may in some measure contribute to assist digestion, tho' its chief use is for the secretion of the Gall. For tho' a Horse has no Gall-bladder, as Oxen, and most other large Animals, yet he has the *Porus Biliarius*, or Gall-pipe, very large, so as to supply the want of the other; and whoever becomes acquainted with his diseases, will find that Horses abound as much with Gall as any other Creature, and are frequently in danger, either when the passage of the Gall is obstructed, or when the discharge of it happens to be too profuse. And therefore if a Horse had a Gall-bladder, such as some other large Animals, it might be greatly exposed to accidents by the violence and quickness of his motions. Which would either prove mortal, or render him altogether useless.

The *Porus*
Biliarius
or Gall-
Pipe.



TAB. XIV. p. 109.



Chap. 4. The Parts of the Lower Belly.

109

The Sweet-bread is also a large Gland or Kernel, that lies across the upper and back part of the Lower Belly under the Stomach, to which it serves for a soft Pillow to rest on. Its refluent Blood is convey'd into the *Vena Porta*, and it has a passage into the first Gut, a little way below the Stomach, where the pancreatick Juice is emptied by its proper Duct. The use of the Gall and the Liquor separated from the Sweet-bread, has already been taken notice of.

The Spleen is placed under the Midriff, and above the left Kidney; it is somewhat oval, and flattish, and of a dark livid Colour; its texture is vesicular, but its use is not yet perfectly known, tho' several Anatomists have published their conjectures about it.

All that remains to be described in the Lower Belly, is the Kidneys, with the urinary and genital parts; wherein I shall but just mention the latter, the knowledge of which being but little required in the diseases of Horses.

The Kidneys are two in number, viz. the right and the left. The right lies under the Liver, and the left under the Spleen; so that it is seated a little higher than the other: they are both placed in the cavity of the Loins upon the two lowermost Ribs. Their use is to separate the Urine, which is of great importance to the health and preservation of Horses, they being liable to many diseases, which either take their origin from faulty Kidneys, or have at first such symptoms, as plainly shew the Kidneys to be more or less affected. The right
Kidney

Kidney of a Horse is somewhat triangular, the left oval, the upper part larger than the lower. Each Kidney has a small cavity in the middle, called its *Pelvis* or *Bason*, into which the Urine distils from the *Glandules* on all sides. From the *Pelvis* of each descends a Pipe or Ureter, which conveys the Urine from the Kidneys to the Bladder. The Bladder is composed of three Coats, as the Stomach and Guts, the outer and innermost membranous, and the middle Coat muscular, which are all extremely thin, only that the muscular Coat grows thicker towards its Neck, where there is a *Spinster* that opens and shuts the passage at pleasure. The Urine is convey'd from thence thro' the Yard, by a Pipe called the *Urethra*, which in a Horse is pretty large. The *Glandulæ Renales*, by some called the *Capsulæ Atrabiles*, because they contain a small portion of a blackish Liquid, are small, and seated above the Kidneys. Their use has never yet been determined, unless that they may have been of some benefit to the *Fetus* during the time of Gestation, being then larger than the Kidneys, but rather diminish after the Birth.

The
Genital
Parts.

The Genital Parts of a Horse are chiefly the Yard and Testes. The Yard or *Penis* begins with two separate Bodies, that arise from the *Os Ischium*, which unite under the *Pubis*, and are firmly connected by a Ligament; the fore part in a Horse, which answers to the *Gland* is broad and thin. Its whole Texture is full of little Cells or Caverns, and is therefore capable of being easily distended or depressed, by a sudden

Chap. 4. The Parts of the Lower Belly.

III

sudden influx or reflux of the Blood. Underneath its cavernous part is the *Urethra*, wherein are several Glands that discharge a *Mucus*, to prevent its being hurt by the acrimony or sharpness of the Urine, which would be very dangerous to a Horse, because of the thickness and largeness of the Sheath, that would be greatly inflamed by any excessive heat in the urinary Passage; the Sheath being a loose membranous Substance, derived from the Integuments of the Lower Belly.

The *Testes* or Stones are seated in a *Scrotum* or Purse, which also takes its origin and growth from the external parts. Their Substance is glandular, their use being to prepare the Seed for procreation, which is carried by proper Vessels into the *Vesiculae Seminales*, where it remains till the time of Coition, when it finds a Passage into the *Urethra*. They have four Coats or Covers, and have proper Veins and Arteries, the chief of which, called the *Spermaticks*, communicate with the Veins and Arteries of the Kidneys, viz. the *Emulgents*. These Vessels are convey'd within the outermost Coat of the Testicles, called the *Tunica Vaginalis*, which incloses them as in a Sheath, and proceeds from the *Peritoneum* above describ'd, thro' Perforations in the form of a ring, between the Muscles of the Lower Belly, and are in this manner contriv'd, to prevent Ruptures of the Intestines, which otherwise would frequently happen in the human Body, but are so rare in Horses, by reason of their horizontal Position, that I have seen Burstness several times,

times, tho' yet I never saw but one perfect Rupture into the *Scrotum*, which happened to a fine Arabian Stallion, in covering an unruly Mare and but few on the Navel; and these were caused by violent accidents. As to the Genitals of a Mare: The Mare has her *Matris Ovaria*, and other parts, that contribute to conception and nutrition of the *Fœtus*; which are much the same in most Quadrupeds, and have often been describ'd by Anatomists, who have been curious in those things that concern the Generation of Animals; and therefore I have the rather omitted them here, because Mares are seldom subject to any accidents in those parts, which may not be as well remedy'd by proper care, as by the use of Medicines.

C H A P. V.

Of the Parts contained in the Upper Cavity or Chest.

^{The}
^{Thymus.} **I**N the upper Cavity or Chest is contained the *Pleura*, *Mediastinum*, the Heart and Lungs, with a glandular Substance called the *Thymus*, from its resemblance to a Leaf of Thyme. This lies across the upper part of the Breast, and is like a soft pillow to the Lungs, especially in Brutes, where it is considerably larger in proportion, than it is in Men, of which I shall take some notice hereafter.

^{The}
^{Pleura.} The *Pleura* is a very fine Membrane, that lines the whole inside of the *Thorax* or Breast, the back-part of it serving like a duplicature, to
cover

at E

Ru-

111

Mr.

W.

Co.

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Fig. I.

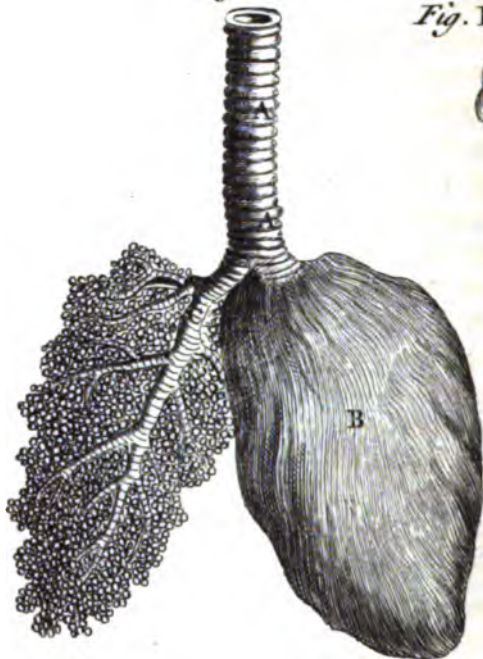


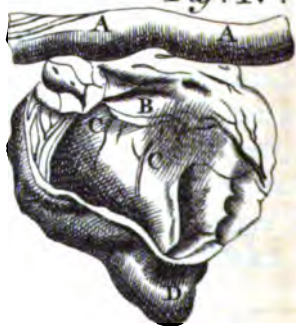
Fig. II.



Fig. III.



Fig. IV.



cover and inclose the great Vessels within it, that retain to the Heart and Lungs, as its exquisite smoothness preserves the Lungs from being hurt in their continual dilatations. This Membrane is always thought to be the Seat of the Pleurisy in Men, tho' I cannot say I have seen it often much affected in a Horse, even where the Lungs have been rotten or inflamed.

The *Mediaſtinum* is a Membrane which divides the Cavity of the Breast like a Partition in two halves. In Men it is double, but in a Horse seems undivided, or at least is so close that it cannot be easily separated. Its chief use is to keep the two Lobes of the Lungs separate and asunder, especially in lying on one side, a posture in which Horses often lay themselves to sleep. The *Mediaſtinum*.

The Lungs or Lights (which is their vulgar name) consist of two Lobes that fill up the greatest part of the Chest, having the *Mediaſtinum* between them. In some quadrupeds each Lobe is subdivided into several small Lobules, in the same manner as their Livers, but not so much in a Horse, as in other animals that have a greater variety of motions; which perhaps may be the reason, why Horses Lungs are so easily inflamed with hard Exercise, and with every great Cold. The *Aspera Arteria*, or Windpipe, which begins with the Larynx behind the Root of the Tongue, descending along the fore-part of the Throat, is branched out into the Lungs. This Pipe is composed of circular Rings of Cartilage or Gristle, which surround it about two thirds, the back part being a plain

Parts contained in the Chest. Part II.

section, smooth and even, that it may not incommode the Gullet, which takes its course immediately behind it, and upon which it lies. Between the Rings is a fleshy Membrane on which they are fixed, which also composes the back part towards the Gullet. This being muscular, and the Rings cartilaginous, give it a spring of Action, whereby it contracts and dilates, so as to correspond with all the motions of the Neck and Breast. At its entrance into the Chest, it is divided into two principal Branches, called its *Bronchia*, and is afterwards subdivided into innumerable other Branches, the extremities of which compose an infinite number of small Cells or Air-bladders, which, with the Ramifications of the Veins, Arteries, Nerves and Lymphaticks, make up the whole mass or substance of the Lungs. These Cells or Vessicles are always filled with Air, and distended in inspiration, and are empty and sunk in expiration, and receive from the Blood-vessels a quantity of Lymph or perspirable Matter, which not only keeps the Lungs from drying, but makes a large and necessary discharge from the Blood, as we may easily perceive from the Breath of all Creatures in frosty weather, or when we ourselves breathe upon a Glass, or any polished Metal or Stone. The Lungs may justly be reckoned among the principal Organs of the Body, if not the chief of all, as they are so well adapted in every respect to receive the Air, without which we cannot support Life one moment, and are no less fitted to purify the Blood by their continual action,
and

and by making such ample discharges, as are necessary for the preservation of Health, as well as of Life. Besides that they are the chief Instruments of the Voice in all Creatures, and by drawing in the *Effluvia* thro' the Nose, contribute greatly to the sense of Smelling.

The *Pericardium* is a very strong membranous substance, which incloses the Heart like a Purse. It is not only of use to defend it from the frictions of the Lungs, but contains a moisture which keeps it cool, and renders its motions glib and easy.

The *Pericardium*,
or Heart
Purse.

The Heart is a Muscle of a Conic Figure, *viz.* broad at bottom and narrow at top. In a Horse it is not near so large as in a Bullock, nor proportionably so broad towards its Basis. Its Fibres are very compact and laid close together, having a twisted or spiral direction, especially towards its Top, where it somewhat resembles the contortion of a Snail's Shell. It is fixed to some of the *Vertebrae* of the *Thorax*, or Rack-bones of the Breast, by the large Vessels that go to and from it. Its point inclines a little downwards towards the left side, where it is received into a depression of the left Lobe of the Lungs, which perhaps may be form'd in the *Fœtus* by the position of the Heart, before the Lungs have been filled with Air. The Heart is nourished and maintained by its own proper Vessels called the *Coronariae*, in regard they surround its whole substance like a crown or garland. It has a middle Partition, which divides it internally into two Ven-

The
Heart.

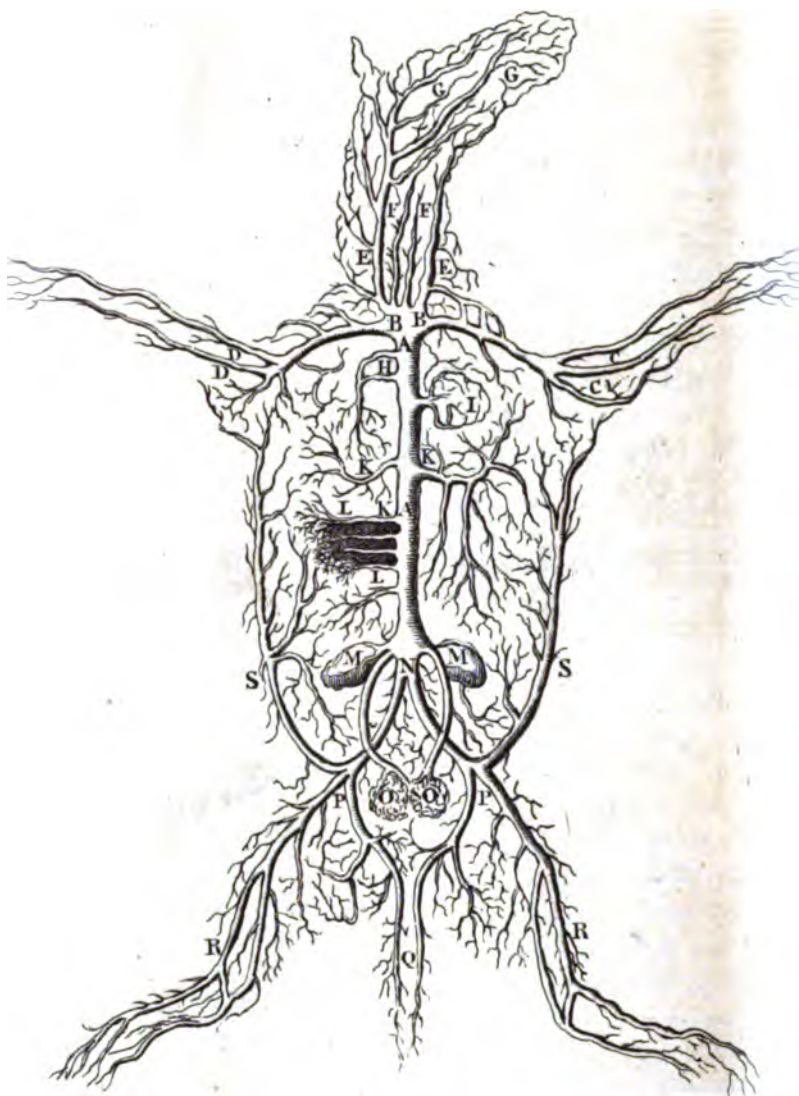
tricles ; the left is smaller than the right, and its sides much thicker, its office being to drive the Blood to the most distant parts thro' the whole body, whereas the right Ventricle detaches it only thro' the Lungs. Its inside has several small Chords or Compages of Fibres, called *Columnæ Carnesæ*, which resemble the bundles of columns which we perceive in Gothick Buildings, and help to comminute, and break the grosser parts of the Blood, in the frequent contractions of the Heart. The contraction and dilatation of the Heart, is called its Systole and Diastole. The first when the *Vertex* or top of the Heart is drawn down to its basis, to send the Blood into all parts, and the latter, when it opens and dilates itself to receive the reflux Blood. The Heart has its Auricles, which are so called because they resemble two Ears, and are seated at its basis, one on each side, to receive the Blood at its entrance into the Heart, the right from the ascending and descending Trunks of the *Cava*, and the left from the pulmonary Veins, by which it enters in due portions, and so as it may not rush in with too much violence, and in too great quantity, to interrupt the regular action of the Heart ; for when the Auricles are full the Heart is empty, and when the Heart is full the Auricles are empty. The Auricles, in their mechanism and structure, somewhat resemble that of the Heart, only that they are chiefly membranous, whereas the Heart is altogether fleshy ; for if it was tendinous in any part, as most other Muscles are, it would be altogether unfit for its office. When
the

the two trunks of the *Cava* open into the right Auricle, there is a little eminence or rising, which prevents the Blood of the ascending and descending Trunks from rushing together, and causes it to slip more gently into the Ventricle, and the coronary Veins likewise opening into its entrance, with the reflux Blood from the Heart, may probably render this the more necessary. The large Vessels which empty the Blood into the Heart, and those that receive the Blood from it, have each of them *Valves*, whereby the Blood is forwarded in its Passage, but cannot return back the same way it came, *viz.* the *Vena Cava* which enters into the right Ventricle, has three, called *Tricuspidæ*, being like so many points of a spear or lance. These point inwards, so as to open a free passage for the Blood, into the right Ventricle of the Heart. The Pulmonary Artery, which receives the Blood from the same Ventricle into the Lungs, has also three *Valves*, called *Sigmoidæ*, from their resemblance to the Greek Letter *Sigma* Σ. These look from within outwards, by which they hinder the Blood returning back again into the Heart. The pulmonary Vein has two *Valves* called *Mitrales*; these have the same office as those of the *Cava* above described, being to hinder the Blood returning back again into the Lungs, and the *Valves* of the *Aorta* or great Artery, called *Semilunares*, have the same office as those of the pulmonary Artery, *viz.* to prevent the Blood which by it is detached into all the other parts of the Body, from returning back again into the Heart,

The use of the Heart is sufficiently deducible from what has been already said in its description, the Heart being the vital Fountain which receives the Blood from all the rivulets of the body, and dispenses it back again thro' its proper Channels, for the support and nourishment of every part; and for that end, its structure is very peculiar and different from all other Muscles, especially those that move particular parts, for as these are partly fleshy and partly tendinous, or have their fleshy Fibres end in Tendons of a closer contexture, the Heart, on the other hand, is altogether fleshy, and made up of Fibres so exquisitely fine, and so closely compacted together, that it is, by that means, indowed with all the force that is necessary for its function, and its basis is the most compact of all its other parts, where probably its Fibres have both their origins and insertions in the membranous Coats of the large Blood-Vessels to which it adheres: rising spirally upwards, and turning again downwards archways, in the like direction over the Ventricles, which seems best to correspond with its dilatation and contraction. But if we inquire by what means the Heart comes to be endowed with such a capacity of action, wherein we ourselves have not the least share, we must confess our Ignorance, and ascribe this wonderful piece of mechanism to the great Author of nature. In other actions we have something voluntary, *viz.* we have power to move a Leg or Arm, or any other Member; but in the action of the Heart, we and all other animals are altogether passive.



TAB. XVI. p. 119.



passive. We know indeed, that the Nerves, which are plentifully bestowed on the Heart, have a great share in its continual motion, which is discoverable by experiments made in tying the trunk of any Nerve, that dispenses its branches upon a Muscle, at what time the Muscle will become paralytick, and cease to act until that impediment is removed; but still the Nerves are only instrumental, and therefore all that we know of this matter, must be resolved into the same original cause.

I have seen the Hearts of Horses frequently opened; sometimes there happens, as in the human body, collections of matter within the *Pericardium*. I have seen Polipusses in the great Vessels, and sometimes a mass of slippery Fat, especially within the left Ventricle, of Horses that have dy'd suddenly, and sometimes the Heart itself preternaturally large.

C H A P. VI.

Of the Blood-Vessels, *viz.* The Veins and Arteries, with their distribution into all Parts of the Body of a HORSE.

IT may be easily understood, from what has been already observed in the description of the Heart and Lungs, that the ascending and descending Trunks of the *Vena Cava*, the ascending and descending Trunks of the *Aorta*, with the pulmonary Vein and Artery, the *Vena Porta* of the Liver, and some few others, are the principal and most remarkable of all the

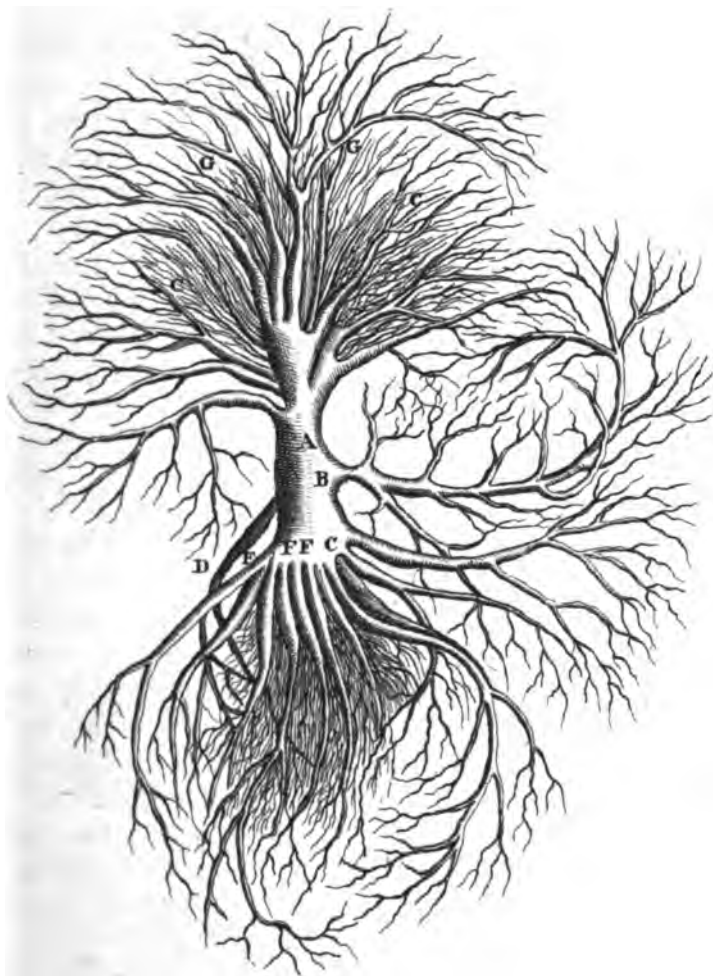
Blood-vessels; that the Arteries carry the Blood into all parts from the Heart, and that it returns back again in the Veins, when it has taken its circuit and progress through the Body; therefore it remains only to shew in what manner both the one and the other are distributed, so as to perform that important office, whereby all parts of the animal Body have their vital supplies.

The distribution
of the
Veins and
Arteries.

The ascending and descending Trunks of the *Vena Cava*, meet so as to open into the right Auricle of the Heart. The Auricle receives all the Blood from both the above-mentioned Trunks, which fills the right Ventricle of the Heart in its Diastole, and by its Systole empties the same Blood into the pulmonary Artery, which supplies the whole substance of the Lungs by innumerable branches: The small capillary branches of the pulmonary Vein, take up the Blood from the capillary branches of the Artery, and these convey all the reflux Blood into one pretty large Trunk, which opens into the left Auricle; and this Auricle, by its Systole or contraction, discharges the Blood into the left Ventricle, which thrusts it out into the *Aorta*. This first of all sends out two small branches to the Heart, *viz.* The *Coronarie* above described, and then rising a little archways, perhaps to lessen the *Impetus* or force of the Blood, as it immediately rushes from the Heart, it is divided into its two principal Trunks, *viz.* the ascending and descending.

The ascending Trunk of the *Aorta*, climbs up by the Windpipe to the upper part of the
Thorax,

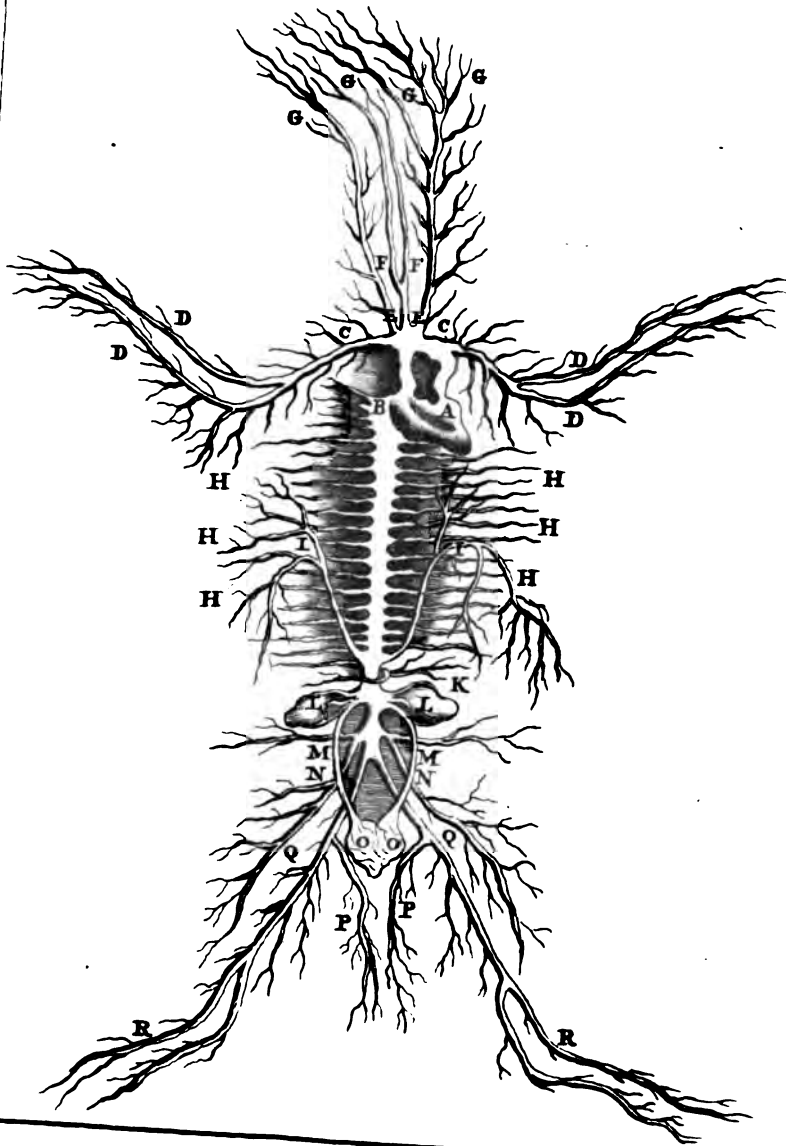
TAB. XVII. p. 120.







TAB. XVIII. p. 121.



Thorax, where it sends off the subclavian Arteries in two branches, which run under the Channel-bones on each side. These send off other branches, both from their upper and under sides; from their upper sides the cervical Arteries, which are partly spent on the Muscles of the Neck and Breast, and partly on the Thyroid Glands near the Windpipe. From the lower side of the subclavian Arteries proceed the superior Intercostals, which passing through the Chest, send forth several branches to the Fore-Legs. Near where the Subclavians go off from the *Aorta*, arise two other principal branches, called the Carotid Arteries, which ascend upwards towards the Head, where they form the *Rete Mirabile*, and *Plexus Choroïdes*, upon the surface of the Brain, which are plainly to be seen, and help to serve the Brain and its Membranes. The Carotids also detach several branches to the Windpipe, the Larynx, and some to the Tongue, and lower Jaw, and others to the Scalp, and external parts of the Head. By these four principal branches, *viz.* the Subclavian and Carotids, the whole Head and Neck, as also the external parts of the Chest and Fore-Legs, are supplied with Blood.

The descending Trunk of the *Aorta*, as it approaches the Midriff, sends forth the inferior Intercostals that go to the Ribs, with the bronchial Artery, that accompanies the branches of the Windpipe in the Lungs; and when it has just passed thro' the Midriff it detaches other branches, *viz.* the phrenick Arteries, which

which are dispersed in the Midriff and *Mediastinum*. From the Midriff it reaches downwards as far as the last *Vertebra* of the Loins, but by the way sends off several branches to the Stomach and other Intestines, as the Celiac, Splenic, and upper Mesenterick, and below these the emulgent Arteries, one on each side, which go to the Kidneys; and underneath these arise also from the main Trunk the Spermaticks, which go to the Genitals; and last of all, the lower Mesenterick, which with the upper Mesenterick, supply the whole Mesentery.

After this the *Aorta* or great Artery, reaching the top of the *Os Sacrum*, is divided into two branches, one on each side, called the Iliacs, and these are again branch'd out into the external and internal. From the latter proceed those called the *Musculæ*, which are bestowed on the Psoas Muscle, and other Muscles of the Buttocks, as also the Hypogastricks that run to the streight Gut, the Matrix, the Bladder, *Prostates*, and Yard, and to all the parts contained within the *Pelvis*. From the external Iliacs arise the Epigastricks, which turning forwards, creep along the rim of the Belly, where they meet the Mamillary above described. The next are the *Pudenda*, which go to the privities of both sexes, and thereby communicate with the Hypogastricks. Afterwards the Iliacs go to the Thighs, and as they pass downwards are called the Crural Arteries, supplying the Hind-Legs and Feet with many considerable branches.

This

This being the general distribution of the Arteries into the several parts of the Body, it is to be observed, that all the branches are divided and subdivided into smaller branches, like the boughs of a Tree, or the *Stamina* of Plants, by which all the parts of the animal body is overspread with most minute capillary Arteries, and are so combin'd one with another, that when one or more small Arteries happen to be obstructed, the Blood that is by such obstruction hindered in its passage, is received and taken up into other communicating branches; by which its motion is preserved, and the parts not deprived of their support and nourishment. The same œconomy is observable in the Veins, whose capillary Vessels take their beginning like so many drills or rivulets, which empty themselves into the larger branches, and these at last into the ascending and descending Trunks of the *Cava*, as into a main river; so that when the capillary Veins are divided or obstructed, the communicating branches carry off the Blood, so as to prevent any dangerous stagnation, which by any other mechanism might easily happen from very slight accidents.

But as it is the peculiar province of the Arteries to convey the Blood from the Heart, and distribute it into all parts of the Body, so they are perfectly fitted for that purpose by their structure. The Arteries have three Coats, and the Veins the same number (wherein they both agree with most other membranous Tubes;) but as the impulse of the Blood from the Heart into the Arteries, requires a considerable strength

The Mechanism
and
Structure
of the
Veins and
Arteries.

in

in them more than in the Veins, therefore their Coats are much thicker; the reason of which will appear by considering the office of the Veins, for the capillary Veins receive the Blood where the arterial impulse is but small, and its motion in the Arteries languid; and when the Blood upon its return has entered the Veins, its motion cannot much increase, as it is received from Vessels that are small, and passes into others that are larger; and indeed it could hardly move at all in some places, had not all things been wisely contrived for that purpose; and therefore those who have seen dissections must have observed, that wherever there is any considerable branch of an ascending Vein, there is generally a branch of an Artery underneath it or very near it, which by its continual pulsation gives some help to the motion of the venal Blood, and sometimes, especially on the Limbs, we may observe two Branches of Veins accompany a large Artery, one on each side; and if it happens the same in many places where the Vessels are small, which is no ways improbable, it must be the means greatly to facilitate the return of the Blood, not only from the assistance it has from the pulsations of the Arteries, but as it is carried off in a greater number of Canals, besides the muscular action which accelerates the motion of the Blood in both, but especially in the Veins. But further, the Veins, as in the Chyle-Vessels, and *Thoracick Duct* above described, have *Valves* placed at convenient distances, which all open inwards, for the progress of the Blood towards the Heart; so that

Chap. 6. Of the Veins and Arteries.

125

that being forwarded in its passage that way, cannot return back again; and it may also be observed, that these *Valves* are the most numerous where they are the most wanted, as in the Limbs, and other places where the venal Blood ascends upwards, being fewer in number, where the course of the Blood in the Veins diverts sideways, and few or none where it is directly downwards. But I shall now go on to describe the distribution of the Veins, the larger of which very near agree and correspond with that of the Arteries.

As the *Aorta* or great Artery receives the Blood from the Heart, and disperses it into all parts of the Body, so the *Cava*, as has been observ'd, like a main river, receives into it the Blood from all parts of the Body, proceeding first from Vessels exquisitely small and imperceptible, and afterwards uniting in larger branches, empty themselves into its ascending and descending Trunks, at proper and convenient distances. The superior or descending *Cava*, receives first the coronary Vein from the Heart, near the place where it opens into the Auricle, and before it pierces the *Pericardium* or Purse of the Heart, it receives the *Vena sine pari*, which is made by the union of the Veins of the Ribs, likewise the Bronchial Veins that accompany the *Bronchia* in the Lungs.

The next are the Subclavian and Jugular Veins, which are pretty large, and answer to the Subclavian, Cervical and Jugular Arteries, and are the next of any note, that open into the descending *Cava*. These are divided into

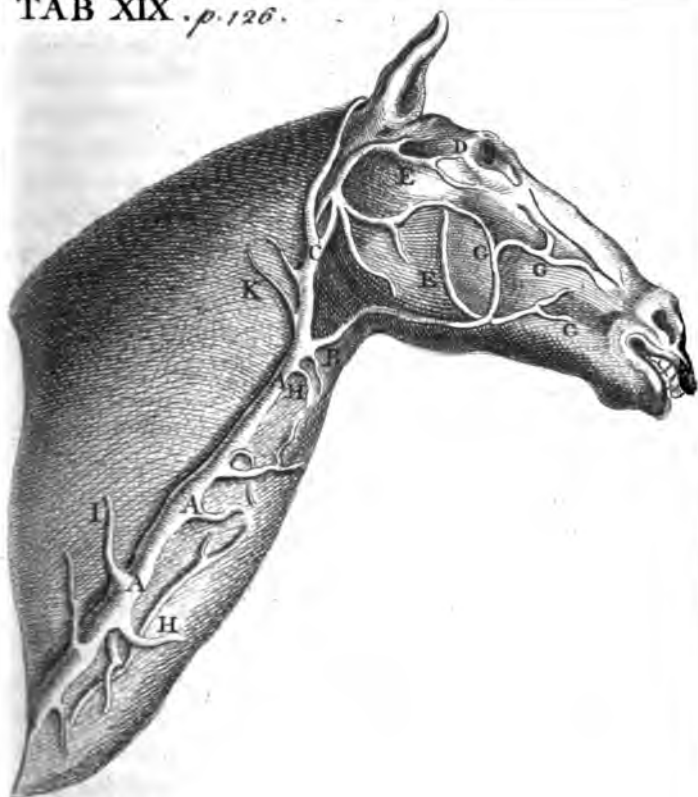
The
course of
Circula-
tion.

th

the external and internal; from the internal is return'd the Blood from the Ventricles of the Brain, and into them also, open all the branches of Veins that lye among the bars of the Mouth, which are often struck with a Cornet or Fleam, when Horses happen to be seiz'd with the Gripes, or other sudden disorders; also the *Ranulares* or Veins under the Tongue, and many other Branches and Veins which communicate with those of the Brain. The external Jugulars are those large Veins which run the length of the whole Neck, one on each side near the Gullet, and are constantly opened in all cases that require bleeding; these being the largest and safest in the Body of a Horse. These receive and carry back that portion of Blood, which comes from all the external parts of the Head and Face, viz. from the Eye-Veins, the Temple-Veins, and those of the Nose and Lips.

The Subclavian Veins, viz. the two large Veins which pass along by the subclavian Arteries under the Channel-bones, not only receive a great part of the Blood which enters the Chest, but likewise have all those Veins open into them, which run along the outward part of the Breast, Fore-legs, and Feet. The Plate Veins, which open into the Subclavian, runs along the inside of the Fore-leg towards the Knee, answering those on a Man's Arm, and are frequently opened for lameness in the Breast or Shoulders; but I have often had Horses bled there on other accounts, with good success. Below this are the Shank-Veins and Shackle-Veins, which communicate with the Plate-Vein. The

TAB XIX. *p. 126.*





Shank-Veins are those that run in the hollow on each side of the Back-Sinew, between it and the Shank ; and the Shackle-Vein is that branch which runs across the Back-Sinew, and communicates with the Shank-Veins on each side, under the place where a Horse is shakled. But this Vein is so very small, that it is scarce ever to be seen or felt, but when a Horse happens to be extremely hot ; and then we may perceive one or more branches run across the Sinew. I have sometimes known pretty large Varixes in those parts, by which the Shackle-Vein has appeared very plain and visible at all times, and been the cause of great weakness and debility in the Limb, till it has been removed by manual operation. These, and the Shank-Veins, communicate with those of the Coronet and Toe. Those of the Toe are often opened for Infirmities of the Feet, and the Veins about the Coronet are frequently cut asunder in the cure of Quittors, and other accidents in those parts, and sometimes with less danger to the Horse than one could well imagine.

The ascending *Cava*, which runs along by the Spines of the Back, and carries the Blood from all the lower parts upwards to the Heart, receives first those branches of Veins, which return the Blood from most parts of the Lower Belly, viz. the *Mesenteria* from the Mesentery, the *Portæ* from the Liver, the Emulgents from the Kidneys, the Spermatic Veins from the parts of Generation, and where it is divided, as the descending *Aorta* into the internal and external Iliacs. The first receives branches
from

from the Hypogastricks, by which the Blood is returned from the Matrix, Bladder, and streight Gut, and into the latter, *viz.* the external Iliacks open into the Epigrastricks, with branches from the *Peritoneum*, and external parts of the Lower Belly, which in the Farriers terms are denominated by different names, as the Kidney-Veins near the Loins, the Flank and Spur-Veins, which are often struck and wounded by the Spurs, the Liver-Veins on the side of the Lower-Belly, and are sometimes opened from a suspicion of diseases in the Bowels, and also that of the Rump, called the Tail-Vein, which the Farriers frequently open, or else scarify the Tail in the Staggers, and other disorders that affect the Head. The Thigh-Veins, and the Crural-Veins, also enter into the external Iliacks and Epigrastricks, as the Shank-Veins in the Fore-Legs communicate with the Subclavians. The Thigh-Vein runs along the inside of the Thigh, and is often opened in Fevers, Lameness of the Hips, and disorders of the Loins and Kidneys. The Crural Veins are those on the lower Limbs, on each side the Instep, and answer to the Shank-Veins, in the Fore-Legs above described.

C H A P. VII.

Of the Lymphatick Vessels.

THE Lymphatick Vessels arise from all parts of the Body at the extremities of the Arteries, in the same manner as the Veins, but

but more plentifully from the Glands than any where else. They are clear pellucid Tubes, of a cylindrical Figure, and as they appear to the Eye, seem only to consist of one exquisitely thin Coat. They often take their course thro' Glands; but when it is so, there is generally another branch, that either passes over or along the side of that Gland, which, as Mr. Cheselden well observes, may prevent their Fluid from being obstructed, which would readily happen in case these Glands through which they pass should become diseased. Those of the Lower Belly, enter partly into the *Venæ Lactææ, Secundi Generis*, which rise from the small Guts; and partly into the receptacle of the Chyle; and those of the Chest into the *Thoracick Duct*, and Subclavian Veins; many of them also open into other large Veins in divers parts of the Body, from whence we may easily gather, that the use of the Lymph is to dilute the Blood, for the Lymph being a very fine pure Water, must render it more thin and fluid, and consequently more fit to pass through the minutest Vessels. But the *Lymphæ Ducts* are themselves so extremely thin, as exposes them to frequent ruptures, especially in Horses, whose great weight join'd with their labour, and many other concurring causes, easily produce such accidents. I have seen in Horses, their whole Chest filled with water, sometimes the Cavity of the Lower Belly only, and sometimes both Chest and Lower Belly, especially when the distemper has been of any continuance; and therefore in all violent and visible oppressions, which generally

The use
of the
Lymphæ.

The distribution
of the
Lymphatic
Vessels.

precede such distempers, I have found the greatest success from large evacuations, particularly such as promote Urine plentifully. The *Lymphæ Ducts* are branched out in the same manner as the Veins, in many and various ramifications, and therefore have valves at convenient distances, and where they are the most necessary to assist the motion of the Lymph, and prevent its regress; and perhaps the pulsation of the Arteries, and the muscular motion, may also contribute somewhat towards the same end.

C H A P. VIII.

Of the Glands or Kernels.

HORSES being as much subject to diseases of the Glands as most other animals, and a Gland being the same thing that we commonly call a Kernel in brute Creatures, it may not be improper to give those, especially who are unlearned, some notion of their different kinds, and also of their mechanism and use, wherein I shall chiefly follow Mr. *Cbesfelden*, who has given a more rational and clear account of the nature and structure of the Glands, than some of those who have written elaborate discourses on the Secretions.

Mr. *Cbesfelden's*
Account
of the
Glands.

A Gland or Kernel, according to this author, is chiefly composed of a convolution of one or more Arteries of a considerable length, from whose sides arise vast numbers of excretory ducts, in the same manner as the *Lacteals* arise from the Guts to receive the Chyle. The same au-

Chap. 8. Of the Glands or Kernels.

131

thor is of opinion, that altho' the larger Secretions are made by visible Glands, (that is, such as we can in a natural state, see plainly with the naked eye,) yet that unconvolved Arteries may have excretory Ducts, by which he imagines Secretions are made from all the Membranes that line Cavities. That numbers of Lymphatick Vessels also arise from these Arteries, whose use seems to be, to take off the thinnest part of the Blood, from such places where a thick Fluid is to be separated, being always found in greatest plenty, in such Glands that separate the thickest Fluids, as in the Liver, and Testicles; and observes, that where the thickest Secretions are made, the velocity of the Blood is the least, as if it was contrived on purpose to give those seemingly tenacious parts, more time to separate from the Blood: that the Arteries that compose different Glands; are convolved in different manners; but thinks it will be difficult to discover, whether their different Secretions depend upon their different convolutions. The same author further takes notice, that the Excretory Ducts arise from the Arteries, and unite in their progress, as the roots of trees, plants, fruits, and even different minerals, in their growing, often derive their distinct, proper, nutritious Juices from the same kind of earth; so the Excretory Ducts in different Glands, separate from the same mass of Blood their different Juices, tho' we have no certainty what these different Secretions depend upon, whether upon the structure of the parts, or on different attractions;

but concludes in favour of the latter, *viz.* that from the great simplicity and uniformity usually seen in nature's works, he is inclined to think, that the different secretions arise from the different attractions, seeing that in plants and minerals there seems to be no other way.

Thus far Mr. *Cbesfelden*, in his ingenious and accurate account of the Glands; the understanding of which is of no small consequence to the knowledge of diseases; for how far these are disturbed in their several offices, so far the animal body must suffer; and this in proportion as their secretions are of more or less moment to the preservation of life and health, or according as their situation is more or less dangerous, and puts them beyond the reach of proper applications. And it may be observed, as all acute diseases generally proceed from an inordinate motion of the Blood, and this oftentimes from an obstructed perspiration; so all chronical diseases, for the most part, arise from a distemperature in the Glands.

Glands of
various
Kinds.

The Glands are of various kinds, and are more or less to be found in almost all parts of the body, and in such manner as they may best perform their various functions. Thus even all the Membranes that line cavities, are studded with Glands, or have vessels that discharge a Mucus, to preserve them from adhering to the parts contained within them; and those parts that are exposed to the air, as the Nose, Ears, Mouth, and Head of the Wind-pipe, have also their Membranes beset with Glands, to preserve them from turning too dry,
and

and from other injuries to which the external air would expose them. The Skin is also thought to be full of very minute small Glands, which separate the Sweat, and are called the Miliary Glands, from their resemblance to millet-seed. The Udder in Mares is also glandulous, for the preparation of the milk. The Liver, as has been observed, is the largest Gland in the bodies of all animals, for the separation of the Gall or Bile ; the use of which has been already mentioned in its description. The *Pancreas*, or Sweetbread, is also glandulous, and likewise prepares a juice for the help of digestion ; and the Kidneys are of great moment for the separation of the Urine. There are also the salivary Glands that separate the juices in the Mouth, which are squeezed into it by the motion of the lower Jaw, and serves to moisten the food, and render it not only fit to be swallowed, but the more easy of digestion. Of these, the Parotid Glands are the largest, and are situated behind the lower Jaw, under the Ears ; their excretory Ducts passing through the *Buccinator* Muscles into the Mouth. The next are the inferior maxillary Glands, situated at the under side of the lower Jaw, having their excretory Ducts entering the Mouth on both sides under the Tongue, and near the Grinding-Teeth. Another small Gland, called *Sublingualis*, lies more inward, under the root of the Tongue, and is the chief seat of the Strangles in young Horses. These, with the Tonsils near the *Uvula*, are the chief salivary Glands. The other Glands within the Mouth

Their
Use.

The *Sub-
lingualis*
the Seat
of the
Strangles.

being very small, and chiefly dispersed upon the inner Membranes, serve to keep the Mouth sufficiently moist. In the human body, numbers of these small Glands may be felt at all times on the inside of the Lips, which preserve them from growing dry by much speaking; but in Horses, that have no need of speech, there are scarce any to be felt, except a very few, and these exceeding small, at the two Angles or Corners of the Mouth. For the foam that falls from a Horse's Mouth, when he champs upon his Bit, is chiefly derived from the Salivary Glands.

The Lym-
phatick
Glands.

As to the Lymphatick Glands, they are situated some few in the Head, some in the Thorax or Chest, and some in the Lower Belly, others in the Interstices of the Muscles, or accompany the large Blood-vessels. And those under the Armpits, and in the Groins, are also reckoned among the Lymphatick Glands; but in Horses, are much smaller in proportion than in Men, tho' they seem to run a greater length; and perhaps if they were larger, and more prominent, might easily be hurt, or too much pressed by the violent motions of a Horse.

Mr. *Chefelden* reckons the *Glandula Pinealis*, which *Des Cartes* very ridiculously took to be the seat of the soul, only a Gland of this kind, having often seen large *Lymphæ Ducts* running into it from the *Plexus Choroides*, and has also observed a large Lymphatick enter into the *Glandula Pituitaria*, which lyes in the basis of the Brain; tho' this has been judg'd by most anatomists to be only an excrementitious Gland.

Several

Several Lymphatick Glands are also to be met with in the Neck, accompanying the Carotid Arteries, and internal jugular Veins. The *Glandulæ Thyroidæ*, which are situated immediately below the Thyroid Cartilage, are also reckoned of the Lymphatick kind, as also the *Thymus* immediately within the *Thorax*. The *Thymus* is much larger in children than in grown persons, but is not so in brutes; and the above-mentioned author has observed, that in men as the *Thymus* grows less, the Thyroid Glands grow larger, and that the *Thymus* and *Glandulæ Thyroides*, both belong to the same Lymphaticks; and I have seen both the *Thymus* and *Glandulæ Thyroidæ*, in a glandered Horse, all over cancerous, and the Lungs at the same time little or no ways tainted. There are in the *Thorax*, besides the *Thymus* and *Thyroides*, several Lymphatick Glands about the basis of the Heart, and sides of the Lungs: And we may also observe, many Lymphatick Glands in the Lower Belly, particularly in the Mesentery, and some among the fat about the Kidneys, and by the sides of the Iliack-Vessels. The Lymphatic Glands in the Limbs are but few, and these for the most part small in a Horse, unless they happen to be inflated. That which is situated in the fat, called the Pope's eye, is generally about the bigness of a small walnut; but when the Lymphatick Glands happen to be distempered, the smallest will sometimes grow to a very large size.

When the Lymphatick Glands happen to be diseased in any great degree, then the Lym-

Diseases
of the
Glands.

phatick Vessels are apt to burst and cause Drop-
lies. If in the *Thorax*, the whole Cavity of
the Chest will sometimes be filled with Water,
if in the Lower Belly, a common Dropsy will
generally ensue. The disorders of the other
Glands, are also attended with many ill con-
sequences; for when the Liver is diseased, or
the bilious Ducts any ways obstructed, this
will in time produce the Jaundice, unless great
care be taken to prevent it. The parotid Gland,
and all others about the Throat, Ears, and
Mouth, are generally affected in violent Colds,
whereby their Secretions are either obstructed, or
are too profuse, and when the small Glands and
Membranes of the Guts are disordered, either
a violent costiveness or purging will follow,
according as they happen to be more or less
affected, and if to any extrem, with the atten-
dants usual in such cases, as Tension, inward
Inflammation, and sometimes Mortification. But
every one must be more or less sensible, of the
mischiefs that arise from disorders of the Kid-
neys, for when these are any ways hurt, so as
not to perform their office, especially if they
are not in a capacity to separate the Urine from
the Blood, then the whole Body becomes swoln
and inflated, which is generally followed with
ruptures of the Lymphaticks, and other small
Vessels, and so ends in a suffocation; or else, in
strong vigorous Horses, rises in watery Tumors
all over the Body, and causes what the Farriers
improperly call a watery Farcy, which is also
dangerous, unless proper helps be timely ad-
ministered. On the other hand, when these
secretions

secretions are too liberal, by an over relaxation of the Kidneys; this occasions a continual profusion of Urine, whereby the natural Strength is impaired, and the whole animal Frame weakened and debilitated. All these effects I have seen in Horses, to which their labour and hard services expose them more than other animals. I have likewise known several Glands in the external parts inflamed and come to supuration, and sometimes indurated and schirrous, but most of these have been safely cured either by proper digestion only, by excision, or by application of causticks, which will be fully explained when I come to treat of these particular cures. The Glands that serve to lubricate the Joints, and the diseases to which those parts are exposed, will also be taken notice of in their proper place.

C H A P. IX.

Of the BRAIN and NERVES.

THE Brain has two remarkable Teguments or membranous covers, the uppermost called the *Dura Mater* being very strong, and the undermost the *Pia Mater*, from its close adherence to the substance of the Brain. The *Dura Mater* is tied to the basis of the Skull, and to all the Sutures or Junctures by Filaments and Blood-vessels, which communicate with the Scalp, and external parts of the Head; but adheres lightly to the other parts. It has three processes; the first is called *Falx*, from its

its resemblance to a fickle, dividing the Brain in two halves. In a Horse it is not so much arched as in Men, because of the flatness and length of his Forehead; and, as Mr. *Cbeselden* has observed, the upper part of the Skull in Brutes is made in such manner as to fit the folds of the Brain, which indeed is plain to be observed in Horses, where it lies as in a case, and by that means is preserved from being injured by violent concussions. The second process runs from the lower and hinder part of the former towards each Ear, where it is fixed to the *Oss petrosum*. The third runs downward towards the great *Foramen* or Hole, thro' which the spinal Marrow passes. The *Dura Mater* has several large Veins; usually called *Sinuses*, to distinguish them from the other Veins which are cylindrical. These receive the Blood from the lesser Veins. One runs along the upper edge of the *Falx*, and a smaller one runs along the lower edge. There are besides these several other *Sinuses*, viz. the *Longitudinalis superior*, the *Rectus* and *Longitudinalis inferior*, and two called the *Lateral Sinuses*, which begin at the endings of the longitudinal and straight *Sinuses*, into which the others empty themselves. These pass through the eight *Foramen* of the Skull into the internal Jugular Veins. There is also a circular *Sinus*, which empties itself partly by detached branches into the *Lateral Sinuses*, and partly into two others called the *Cervical Sinuses*, which pass down on each side through the great hole at the bottom of the Skull, and through the transverse processes of the

the *Vertebræ* of the Neck ; but most of the *Sinufes* of the *Dura Mater* empty themselves into the internal Jugulars.

The *Pia Mater* is a much finer and thinner Membrane than the *Dura Mater*, and adhering close to the Brain, involves its whole substance, somewhat resembling the film that covers a ripe walnut. It has a vast number of very small Arteries that spring from the *Cervical* and *Carotids*, and are here divided into extreme minute branches, that the Blood may not enter the Brain with too much impetuosity; which would be both inconvenient and dangerous. Its Veins are from the Jugulars, and united in such manner, as they may more easily open into the *Sinufes* in fewer and larger Branches, by which this fine Membrane is preserved from inflammation, which otherwise might easily happen upon every slight accident, if the arterial Blood should meet with any great obstruction upon it.

There is another thin Membrane between the *Pia Mater* and *Dura Mater*, called the *Anchoroides*, which with the other two also accompanies the *Medulla Spinalis*, which may be separated by a nice hand and great application, by which it appears analagous to all the other membranous tubes in the animal body.

The Brain consists of two principal parts, viz. the *Cerebrum* and *Cerebellum*. The *Cerebrum* is that which fills up all the upper and fore-part of the Skull, and is separated from the *Cerebellum* by the second process of the *Dura Mater* above described. Its upper side is divided

The *Pia Mater*.

The *Anchoroides*.

The *Cerebrum* or Brain.

Of the Brain and Nerves. Part II.

divided into two hemispheres or halves, and its under side into four Lobes, the two posterior Lobes being larger than the anterior. At the meeting of the four Lobes appears the *Infundibulum* running from the Ventricles of the Brain into the *Glandula Pituitaria*, which Mr. *Chefelden* takes to be a *Lymphatick*, agreeing with the description former Anatomists have given of it, tho' not with the use they have assigned to it. And this I imagine has proceeded from their not being enough acquainted with the Lymphatic Vessels and Glands. The upper part of the Brain is of a cineritious or ashy-colour, called its cortical part, and its lower or inner side being white, is therefore called the *Corpus Calicsum*, under which appear the two superior Ventricles, which are divided into right and left by a thin Membrane named *Septum Lucidum*, which is extended between the *Corpus Callosum* and *Fornix*. The *Fornix* is a medullary substance which reaches from the anterior or fore-part of these Ventricles, beginning with two small roots, and afterwards divides into several branches called *Crura Fornicis*. In the basis of these two Ventricles are the *Corpora Striata*, which are so called from their streaks and variegations, and the *Thalami Nervorum Opticorum*, where the Optick Nerves pass; and beyond these are the *Nates* and *Testes*, which are only two small protuberances of the Brain. Above the *Nates* is situated the *Glandula Pinealis*, and upon the *Thalami Nervorum Opticorum* are the *Plexus Choroïdes*, consisting of a number of Blood-Vessels, Glands and

Chap. 9. Of the Brain and Nerves.

141

and *Lymphae Ducts*. Under the beginning of the *Fornix* is a small Foramen or Hole, with another under its middle, and the space between these *Foramina* and the *Cerebellum* under the two anterior Ventricles, constitutes the third Ventricle.

The *Cerebellum* lies partly under the Brain, and is separated from it by the second process of the *Dura Mater*, which Mr. *Chefelden* has observed to be bony, in all the rapacious animals he has dissected; and in most others it is so firm and so commodiously situated; that the *Cerebellum* cannot be easily pressed upon by the *Cerebrum*. The fourth Ventricle belongs particularly to the *Cerebellum*, and is plain to be seen when that is divided lengthways. The basis of the *Cerebellum* consists of two medullary bodies called *Pedunculi*, and the extremity of the fourth Ventricle is named *Calamus Scriptorius*, from the resemblance it has to a Writer's pen.

The *Medulla Oblongata* is a continuation of the medullary part both of the *Cerebrum* and *Cerebellum*, and the spinal marrow is a production of the *Medulla Oblongata* which passes through the great Foramen or Hole of the Skull, and through the whole channel of the Neck-spines of the Back and Loins: It enlarges in a Horse about the Withers, where the large Nerves are given to the Fore-Legs, and in the Loins where the crural Nerves are distributed to the Hind-Legs, Thighs, and all the hinder parts, and the lower end of the spinal marrow, from whence these and many other Nerves spring,

spring; is called the *Cauda Equina*, which is a term proper enough in the anatomy of a Horse. The cover that involves the spinal marrow is a production of the Membranes of the Brain already described, *viz.* the *Dura Mater*, *Pia Mater*, and *Ancoroides*, and in this resembles most of the other tubes in the animal body.

The
Nerves.

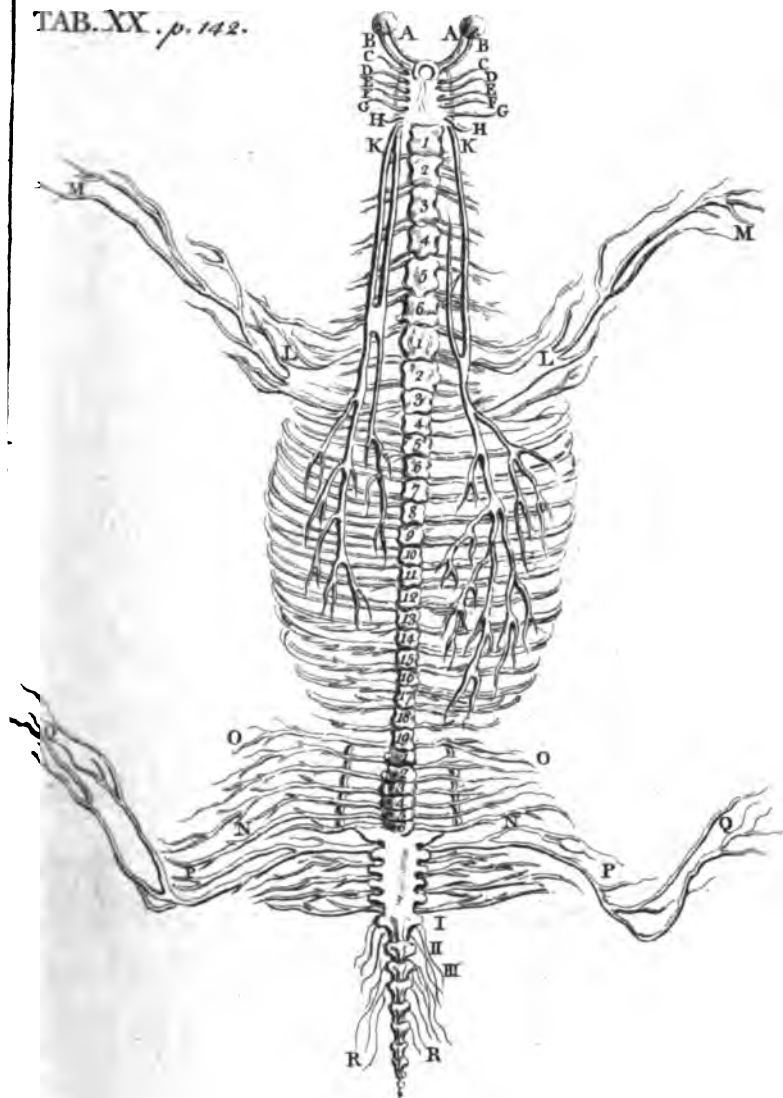
The Nerves are the instruments of all sensation, and may also be accounted the primary cause of all motion, as they actuate the Muscles, which are the immediate instruments thereof. All the Nerves take their origins from the medullary part of the Brain, and *Cerebellum*, from the *Medulla Oblongata*, and pith of the Back. At their first egress they appear like white threads, and have a coat from the *Pia Mater*; and in their passage through the *Dura Mater* obtain another from it that is much stronger, which make a cover to them in all parts wherever they go. Former anatomists have generally reckoned nine pair of Nerves arising from the Head, but the most modern reckon ten pair, including the first pair, which take their origin from the beginning of the spinal Marrow, as being chiefly spent on the Head.

Their distribution
into all the
parts of
the Body
of a Horse.

The first are the *Olfactory*, that in Brutes are a production of the two anterior Ventricles of the Brain, which passing thro' the *Os Cribriforme*, are spread in innumerable imperceptible branches all over the thin Membrane that lines the inside of the Nostrils, and serve to the sense of Smelling.

The second are the *Optic* Nerves, which chiefly contribute to vision. They rise from the

TAB. XX. p. 142.





the *Tbalami Nervorum Opticorum*, pass through the Sphenoidal Bone, and form the *Membrana retina* in each Eye, which Membrane is by many reckoned the seat of the *Gutta Serena*, viz. that sort of blindness where no visible defect or blemish appears on the Eye.

The ten pair of Nerves which arise from the Head.

The third pair are distributed to the Teguments or coats of the Eye, and several of its muscles, whence they are called *Motores Oculi*.

The fourth pair are spent on the *Trochlear* Muscles of the Eye. By these Muscles the passions are chiefly express'd in the several motions they give to the Eye, and therefore are usually called the *Patbetick* Nerves.

The fifth pair, after piercing the *Dura Mater*, divide into three principal branches, the first called the Ophthalmick, a great part of it being spent on the Fat on the Lachrymal Gland, Membranes and Eye-Lids, with some branches to the Membranes of the Nose and Teguments of the Forehead. The second branch gives twigs to the Palate and Nostrils, to the Cheek and upper Jaw, and also to the upper Teeth, with other small twigs to the orbicular Muscles of the Eye-Lids, Nose and upper Lip, where they mix with some Twigs of the seventh pair. The third is distributed on the Muscles of the Cheeks and Tongue, the lower Jaw, and on both the external and internal parts of the Ear. One considerable ramification from this branch enters the canal or Sinus of the lower Jaw-Bone, and gives several twigs to the Lower Teeth, Chin, and Under-Lip.

The

The sixth pair unite with the ophthalmick branch of the fifth pair, and is spent on that Muscle of the Eye proper to Brutes, called *Septimus Brutorum*, and likewise on the Abducent Muscle of the Eye.

The seventh pair, with some branches of the fifth, are displayed on the internal Ear, and after they pass through the Skull, give branches to the Muscles of the Tongue, the Gullet, and detach some external branches to the Neck; other branches of this pair are extended to the outward Ear, parotid Glands and Cheeks, all along to the Chin. In Man they arise from under the annular process of the *Cerebellum*, but in a Horse from the *Medulla oblongata*.

The eighth pair are called the *Par Vagum*, because they are dispersed almost into all parts of the body, their branches being blended and mixed with those of several other Nerves. After they pass out of the Skull, one branch is spent on the Muscles of the Shoulder-Blade, the principal trunk taking its course down the Neck, near the carotid Artery, deals out several branches to the Head of the Windpipe, and passing into the Thorax or Chest, it divides into two, the anterior going to the *Pericardium* or Heart-purse, where some of its branches unite with the Intercostal, and supply many small branches to the Heart, &c. the posterior branch descends with the Gullet, supplies the Lungs and Stomach with innumerable branches, which is the reason why so many painful symptoms arise affecting the Head, when the Stomach of any creature is in the least hurt, or even

even overcharged. The remaining branches are joined with the Intercostals, and pass downwards into the Lower Belly.

The Intercostal takes its beginning from the fifth and sixth pair, and passing out from a large Ganglion or knot formed by several branches, which communicate with some of the first spinal Nerves, and descending with the carotid Arteries, communicates with the *cervical* Nerves that arise from the Pith of the Neck, and gives branches to some Muscles of the Head and Neck. As it enters the Chest from another knot or Ganglion, it gives out branches, by which the Windpipe, Heart, and Lungs, are principally supplied, where its branches again communicate with the eighth or *Par Vagum*. After this the Intercostal runs down by the Vertebrae or Rack Bones of the Chest, where it communicates with the branches sent from between each Vertebra, and when it has passed thro' the Midriff it forms another Ganglion a little above the Kidneys, into which some branches of the eighth pair also enter. From this knot or Ganglion proceed the Nerves of the Guts, Liver, Spleen, *Pancreas* and Kidneys, &c.

The ninth pair being principally spent on the Tongue, are the chief instruments of Taste. Other branches of this Nerve are dispersed in the Glands and Muscles of the upper part of the Breast and Throat.

The tenth pair, which some have reckoned the first of the *cervical* Nerves, rise from the beginning of the spinal marrow, just as it passes through the Skull, and are all spent on the ob-

lique and exterior Muscles of the Head, except such branches as join the Intercostal, with which this pair unites at its first Ganglion, and thereby communicate with the other Nerves above described.

The
Nerves
which arise
from with-
out the
Skull.

The Nerves that arise from the spinal Marrow, after it passes through the Skull, are in Men thirty in number, but in Horses thirty-seven pair, which I shall but just name, they being in all creatures equal to the number of the Vertebræ of the Neck, Back, Loins, and *Os Sacrum*. The Neck has seven pair, which are dispersed partly on the Muscles of the Face, partly on the Muscles of the Neck, and partly on those of the Shoulders and Fore-legs, which being joined with a branch from the second and fourth, compose that remarkable Nerve called the *Phrenick*, which goes to the *Midriff*, *Pericardium*, and other parts within the Chest.

The first two pair of the seventeen Vertebræ of the Back, communicate with the lowermost of the Neck, sending forth some twigs to the Neck and Shoulders. The second and all the other fifteen pair, send each of them a twig to the intercostal Nerve, by which they communicate with all the Nerves of the Viscera contained both in the Chest and Lower-Belly, their other branches being chiefly spent on the intercostal Muscles which lie between the Ribs, as also on the Muscles of the Back, with some twigs that are dispersed on the Lower-Belly.

The Nerves that arise from the Vertebræ of the Loins and *Os Sacrum*, are chiefly dispersed on the Muscles of the Loins, Hips, and Hind-Legs,

Legs, only that the anterior branches of the first pair of the Loins are dispersed all over the fleshy part of the Midriff, where they communicate with several of those above described. Some branches are also spent on the Muscle *Psoas*, and the posterior branches on the *Longissimus Dorsi*; from these also are formed that remarkable Nerve called the *Sciatick*, which is the largest both in Men and Quadrupeds, and is so well known for being the seat of the *Sciatica* or Hip-Gout, a disease from which, I imagine, Horses are not altogether exempted, having seen some few cases which plainly seemed to be of this kind. The *Penis* of a Horse and the *Matrix* in a Mare, are also furnished from the anterior branches of the Loins, and the Testicles from the anterior branches of the *Os Sacrum*, and from these also many small twigs proceed to the Tail, which are necessary to its various motions, and may be plainly seen in a Horse new docked, especially when the Blood is compleatly stopped by a strait Ligature.

To this short description of the Nerves I shall only add, that though their beginnings are not only very small, but of an exceeding soft texture, yet as they pass a little way from their origins, they grow very strong and tenacious, and by their communications one with another, form several large trunks and branches which are proportioned to the parts where they are situated, and which they are to serve, even as the Muscles are stronger in proportion to the weight they are to move, and in this respect correspond with the Nerves; for in the Limbs

and some other parts where the Muscles require a greater supply of spirits, the nervous trunks are the largest, and where there is a constant and continued motion, the nervous *Fibrille* are the most numerous, as in the Heart, Stomach, and Guts, as also in the Lungs and Midriff. It may also be observed of the Nerves, that notwithstanding their distinct origins, yet the whole nervous system is such, that all of them communicate more or less one with another, tho' we are not in the least able to trace their innumerable, minutest communications. The Nerves have an external cover or Coat from the Membranes, that envelope the Brain, and spinal Marrow, which has been discovered by injecting wax of different colours into the Blood-Vessels, whereby the external surfaces of the Nerves are tinged with the colour of the wax injected into these Vessels, and communicated from them to the Coats of the Nerves, while their internal substance has not been chang'd, but remained white. When a Nerve is cut through, it seems to have, no visible bore or cavity in it, and scarce any moisture, its texture being exquisitely fine and compact; but that they have a moisture or *Liquidum Nervosum*, as anatomists term it, will not be deny'd by those who have examin'd them carefully in the Body of any animal, where they appear flaccid, and no ways dry, as some of the Cartilages and Bones, which nevertheless have their proper Juices circulating thro' them. In like manner the Nerves have also their proper Fluids, though their exact texture, like many other minute things

things in the animal machine, can neither be seen by the naked Eye, nor by the help of Glasses. That they are the primary instruments both of sense and motion, is sufficiently known, whether this properly in them proceeds from the animal spirits, or from their vibrations, or from both. The structure and disposition of the Nerves, which all go off in right angles, and not by circumvolutions and windings, as the Blood-Vessels, and *Lymphæ Ducts*, seems to favour a vibration, whatever share the nervous juice, by its inconveivable subtilty, may also have in these sensations. This may be further conjectur'd, by the sudden and immediate impulse whereby all these sensations are communicated to the imagination in a moment, which could not be so easily conceived, if there was nothing besides a meer undulation of the nervous fluids.

From what has been said concerning the Nerves, and the structure of the several parts of the animal Body, we may easily account for all the known sensations, *viz.* of Seeing, Hearing, Smelling, Tasting, and Feeling, in regard there is not the least point throughout the whole animal frame, without an infinite number of little small branches of Nerves; by these sight is communicated to the Eyes, the moment the visual rays fall upon the *Retina*: Smells as soon as any odoriferous *Effluvia* strike upon the fine Membrane, that lines the Nostrils: Sounds, when impressions are made on the auditory Nerves, that move the parts of the internal Ears, which are wonderfully contrived for that purpose. Taste is also conveyed by the Nerves

Sensation
how per-
formed.

that are dispersed on the Tongue, and other fine Membranes within the Mouth. And as to the sense of Feeling, it is the most universal of all others, in regard no part of the Body can be touched in the least degree, but we are immediately sensible of it, and the same is more or less observable in all other animals.

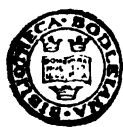
C H A P. X.

Of the EYE.

THE Eye is of a convex, globular form, covered by its proper lids, and inclosed within an orbit or socket, formed for that purpose out of the Bones. The Eyelids preserve the Eye from dust, or other external injuries; are an expansion of the Muscles and Skin, the inner Membrane being of an exquisite fine contexture, that they may no ways hurt or impair the surface of the Eye. Their edges have a cartilaginous or grisly rim, by which they are so fitted as to meet close together in time of sleep, or upon any emergency, to prevent dust or other accidents, that may hurt its delicate texture.

The
Orbit of
the Eye.

The orbit or cavity in which the eye is situated, is lined with a very freeable loose fat, which is not only easy to the Eye in its various motions, but serves to keep it sufficiently moist, as the *Lachrymal* Glands seated in the outer corner or angle of the Eye, serve to moisten its surface, and to wash off any dust or dirt that may get into it. At the inner corner of the Eye next the Nose, is a Caruncle, which Mr. *Cbeselden*



TAB. XXI. p. 131.

Fig. A II.

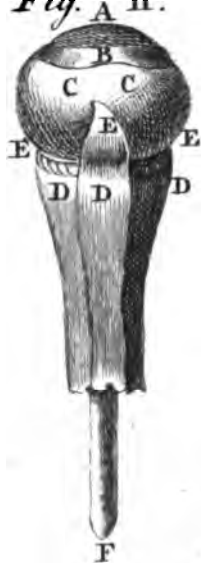
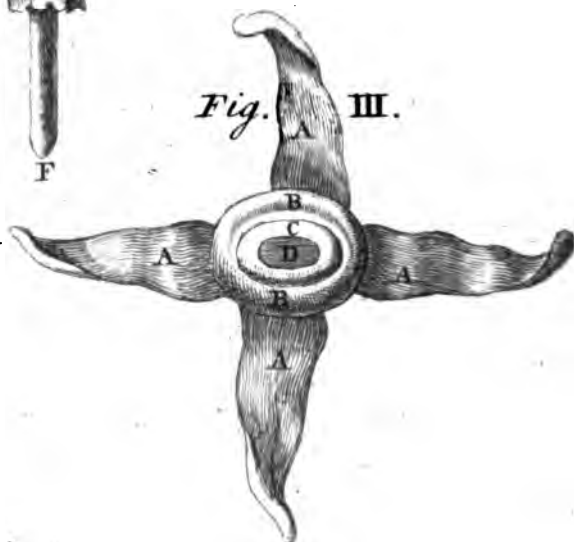


Fig. I.



Fig. A III.



felden thinks may be placed there, to keep that corner of the Eye from being totally closed, that any tears, or gummy matter may flow from under the Eye-lids in the time of sleep, or into the *Puncta Lacrymalia*, which are little holes placed one in each Eye-lid, to carry off any superfluous moisture or tears into the Nose. And it is chiefly when this moisture abounds too much, that it runs down the Cheeks in some diseases of the Eyes, the *Puncta Lacrymalia* being stop'd, or not being large enough to receive the Moisture. This is often to be observed in Horses, and I have seen them also shed tears plentifully in docking, and other painful operations, and likewise some very doged Horses will do the same, when their stubbornness has been conquered and overcome.

The Eye has four Membranes or Coats, and three Humors. The first Membrane is called *Tunica Adnata*, or *Conjunctiva*, and covers all that part of the Eye which appears white in a Man, but in a Horse variegated with streaks and spots of Brown, and being reflected back, lines the inside of the Eye-lid, and by that inversion, it is also the means to prevent motes, dust, small flies, or any other extraneous matter getting behind the Eye-ball into the Orbit, which would be extremely dangerous. This coat is full of Blood-Vessels, which appear in little red streaks, all over the white of the human Eye when it is inflamed, and where there is but little white, as in the Eyes of Horses, the Eye appears fiery, and the Eye-lids when opened and turn'd back look red.

Its Mem-
branes or
Coats
The 1st.

The 2d.

The second coat has its fore-part very strong and transparent like horn, and is therefore called the *Cornea* or horny-coat ; and the other part, which is opaque and dark, is called *Sclerotis*. Under the *Cornea* lies the *Iris*, which in a Horse inclines to a cinnamon colour. The middle of this Membrane, or Coat, is perforated for the admission of the rays of light, and is called the *Pupil*. Under the *Iris* lie the *Processus Ciliares*, which go off in little Rays, and in a sound Eye are plainly to be seen ; as often as these processes contract, they dilate the pupil, which may always be observed in places where the light is small, but in a strong light, the circular fibres of the *Iris* act as a Sphinctre Muscle, and lessen the Pupil, and therefore a dilated or wide Pupil in a strong light, is almost always a sign of a bad Eye. Mr. *Cb. felden* observes, that in Men the Pupil is round, which fits them to see every way alike, and is the same in many other creatures, especially those that are the prey of ravenous birds and beasts, that they may be always on their guard, to spy out their enemies and to avoid them ; but Horses, and other large creatures that feed on grass, and are not so much exposed to dangers of this kind, have the pupils of their Eyes oblong horizontally, by which they are able to view a large space upon the ground, which is also the reason, why a Horse that has good Eyes, shall carry his Rider as safe in the Night as in the Day, and will find the way better with once or twice travelling, than some Men that have travelled the same way twenty times ;

times; and if the rider happens to lead him out of the way, will fall into it again of his own accord.

Under the *Sclerotis* lies the *Choroides*, which The 3d. is the third coat or tunicle of the Eye, and is so called from its resembling the *Chorion*, which inwraps the *Fœtus in Utero*. In Men it is of a dusky brown-colour, and in Beasts of prey, as the above mentioned author observes, a great part of this coat is white, which enables them to see bodies of all colours in the night better than Men, in regard white reflects all colours. But Horses and other creatures that feed upon grass, have the same parts of this Membrane of a bright green, which enables them to see with less light, and makes grass an object they can discern with greatest strength, and therefore it is called sometimes *Tunica Uvea*, from its resembling the colour of a grape, and has only obtained that name in the human Eye, from the earliest anatomists, who have probably begun their anatomical studies in dissecting brute creatures.

The innermost or fourth Tunicle, is called The 4th. the *Membrana Retina*, which is only an expansion of the Optick Nerve upon the *Choroides*, and encompasseth the glassy humor like a net. By a combination of the rays of Light upon the fine filaments of this Membrane, all external images are convey'd by the optic Nerves to the Brain.

Within the tunicles or coats of the Eye, are seated the three Humors which chiefly com- The Humors. pose the Eye-ball. The first is the *Aqueous* or watry

The
Watery
Humor.

watery humor, which lies foremost, and seems chiefly a proper *Medium*, to preserve the chrystaline humor from injuries in case of wounds, bruises, or any other external cause. Mr. *Cbesfelden* thinks it may also serve for the chrystaline humor to move forward in it, while we view near objects, and backwards for remoter objects, as being agreeable to the laws of opticks, for which he gives some reasons, from the mechanism of the Eyes of Fishes, which the curious may see in the last edition of his anatomy of the human body, pag. 296.

The
Chrystal-
line.

Behind the aqueous humor lies the chrystaline, in a very fine Membrane called *Aranca*, being thin like a spider's web. The figure of the chrystaline is a depressed globe or spheroid, and its use to refract the rays of light that pass through it, so that all the rays proceeding from the same point of any object, being first refracted on the *Cornea*, may be united upon the *Retina*.

The
Glasly
Humor.

The *vitreous* humor lies behind the chrystaline, being concave on its foreside, to make a convenient lodgment for the chrystaline, and its hinder part convex, agreeable to the globular form of the Eye, upon which the *Tunica Retina*, and *Choroides* are spread. This humor possesses a space larger than both the other two, and being of a hue like a light-coloured green glass, is a proper medium not only to keep the chrystaline humor, and the *Retina*, at a due distance one from the other, but by its colour to prevent the rays of light falling too forcibly upon the latter, which might weaken or impair the sight.

C H A P. XI.

Of the E A R.

BECAUSE it may be expected, before I conclude the anatomical part, that I should also take some notice of the Ear ; I shall therefore, to gratify the desire of those who have any curiosity that way, add some few things to what has been already said concerning it, wherein I shall be as brief as possible, in regard Horses are not very much subject to diseases in the organs of Hearing, neither can such defects in them be easily known, unless they are caused by outward accidents, or attended with swelling, heat, and impostumation, or other visible symptoms which sometimes happens. But if a Horse should lose his Hearing, it would be difficult to find that out any other way, than by his not answering to the call of the voice, or by his disregarding all manner of sounds and noise. And if this proceed from any defect in the organs, or obstructions in the auditory Nerves, it would be difficult to find a remedy for it.

It has been observed in another place, that the external Ear is of use to collect and gather The external Ear. in sounds, and direct them to the *Meatus Auditorius*, or passage that leads to the Drum, otherwise called *Membrana Tympani*. The passage has a Membrane full of little Glands, where a thick Mucus is separated, which is called the wax of the Ear. This not only keeps the

the passage moist, but prevents dust and insects getting into it ; and at the same time serves to soften the Noises from without, and renders them less harsh and grating. The Hair that is in the inside of the Ears of some Horses is also a defence to the Ear, and it may be observed in coarse plain Horses for draught or burden, that have large Ears, and the passage into the Ear large, there is also the most Hair, and in some a down like wool ; and therefore it may prove injurious to such Horses to have this wholly clipped out and made bare, as is common for sale, by exposing them to colds in their Heads, especially if they happen to stand soon afterwards in sharp frosty winds, or in great rains. The setting up of the Ears may be also injurious, especially to Horses that are fearful or ticklish, as it may more or less mar their hearing. For all Horses upon hearing any noise point their Ears that way from whence it comes, (as I have already observed in treating of the Muscles of the Ear) and when their Ears are so set up and fixed as to deprive them of that liberty, it must cause them to hear more imperfectly, and makes them oft-times unruly, and some of them grow so shy with this treatment, that they can scarce suffer their Ears to be touched.

The
Organs of
Hearing.

At the further end of the passage into the Ear is the *Membrana Tympani*, or Drum, already mentioned, which is extended upon a circular ridge of bone. On one side of this Membrane is a very small aperture covered with a valve, which probably shuts to prevent any

any extraneous matter getting into the inner cavity, and may be of use to give vent to impostumations or gatherings formed in the Ear, if any such should happen within the barrel. Behind it is a cavity called the *Concha*, where four small remarkable Bones are placed, *viz.* the *Malleus*, from its resembling a hammer; the *Incus*, being in shape something like an anvil; the *Stapes*, which in Men is like a stirrup, but in a Horse triangular; and the orbicular Bone, which links the two last together like a chain. These are actuated by their proper Muscles, so as to assist in stretching or relaxing the Drum. From the inner cavity or barrel of the Ear goes the *Eustachian* tube, which reaches towards the palate, through which the air passes in and out to give a vibration to the Membrane or Drum, and a vent to any superfluous fluid, that might happen to be separated within the cavity. There is an oval hole, called the *Fenestra Ovalis*, which opens into this cavity; and near it another round hole, called the *Fenestra Rotunda*, both which are covered with thin Membranes, and lead to a cavity called *Vestibulum*, and thence into the *Coclea*, so called from its spiral windings like a snail's shell, and into three semicircular canals, which altogether have the name of *Labyrinth*, in which are spread the auditory Nerves.

The Ear is so extraordinary a piece of mechanism, that several learned anatomists have given very minute descriptions of it; particularly *Valsalvo*, an Italian, has wrote a pretty large Latin Treatise, professedly of the human Ear,
with

with the figures of its parts as large as the life, done with the greatest beauty and exactness; but it will be sufficient here to observe, that every part of that curious organ is perfectly suited to promote the important end of Hearing, and in such peculiar manner as to render it the most pleasing and grateful to every creature. The sounds being first collected in the external Ear, are convey'd directly to the *Membrana Tympani*, at the same time the *Eustachian* tube affords a passage for the egress and regress of the air into the barrel, like the hole in a Drum, by which a vibration is given to that Membrane, which therefore is usually called the Drum of the Ear. The vibration or shaking of the drum makes it strike upon the *Malleus* or hammer, that is placed in the cavity behind it, and sets the other three Bones in motion; and as this force happens to be more or less exerted, so the sounds must be stronger or weaker upon the Ear, which if they chance to be extremely loud, are hurtful; and if sharp and grating, unpleasant. But to prevent these and other accidents, the *Mucus* of the *Meatus Auditorius*, and the moisture of the Muscles, and Membranes of the internal Ear, not only help to qualify and soften the sounds, but preserve the drum from growing dry and crisp, which in that case might sometimes expose it to be broke or torn. The four little Bones just mentioned, fill up the cavity behind the drum so conveniently, as may prevent its being beat inwards by the violent impressions of loud noises from without. The other cavities which form the

La-

Labyrinth, are also contrived in such manner as to keep the Ear from being hurt; for by their several circumvolutions and windings, all sounds are communicated gradually, and their œconomy is also preserved, so as their impressions may not strike the auditory Nerves, which are dispersed on all the Membranes that line those cavities, with too great force, or in a jarring and confused manner; but all sounds being in some measure modulated in the Labyrinth, are by the Nerves convey'd directly to their origin in the Brain, where they are clearly and plainly distinguished.

How far a Horse may exceed, or fall short of other brute animals in point of Hearing, no one can exactly determine, neither is it indeed material to our present purpose. Those who have a curiosity in such matters, may be very agreeably entertained, by consulting natural history, where many things are related concerning the peculiar properties and instincts, observable in different creatures, and the infinite variety the divine wisdom has thought fit to display in the œconomy of the animal creation. It is well known that a Horse has sufficient quickness in all his senses; some are so acute and nice in smelling, as not to touch a bit of Hay that another has breathed upon, nor drink in a pail after another Horse, until it has been emptied and rinsed; and some will scarce eat any kind of provender but what is sweet and of a good flavour, which we may observe them to distinguish both by their smell and taste; and by their smell they will also distinguish persons.

sons. Their Eyes are also perfectly suited, in the manner already related, both for their own support and preservation, and for the various services we require of them. And as to Hearing, a Horse has all the properties needful in a creature of great sagacity and use. Some Horses will distinguish their keeper, not only by his voice, but by the tread of his foot, before he enters the stable, and some will distinguish the sound of another Horse's foot at a very great distance, and before it can be heard by us. When a Horse is in a fever, and parched with heat and drought, tho' at that time we may suppose his senses to be very dull and much confused, yet he will prick up his Ears at the least noise of a pail. Horses are also very acute in distinguishing sounds, appearing greatly delighted with some, and displeased with others. The grunting of a Hog, or the braying of an ass, will put some Horses upon the fret, or any harsh sound made by an unusual instrument: On the other hand, all fine Horses love the Yelling of the Hounds, are elevated with the horn, and with various kinds of Musick, and some are quite transported at the sound of drums and trumpets, and other martial instruments; which shews that a Horse has a well-form'd Ear, and a very great delicacy in Hearing.

A
DISCOURSE
OF
FEEDING and EXERCISE.

WITH THE

Right Method of administering Medicines to
HORSES, &c. Being a proper Preliminary
or Introduction to the Third Part.

BEFORE I enter upon the particular Distempers of Horses, I judg'd it might be necessary to premise some things concerning Diet and Exercise, which I hope may be of use, as well to Gentlemen, as to those who practise Farriery, in regard many of the Diseases to which Horses are exposed, proceed from some ill management in their Feeding, want of proper Exercise, or from Exercise ill-tim'd, or when it is too violent and given to excess. Allowing too much water or too little, or letting Horses drink at improper times; and to several other such mistakes and neglects. On the other hand, many Horses are hurt by over-much care and sollicitude, when their owners, or the persons who look after them, think they can never do enough to make them look well and appear beautiful. But if we consider

VOL. I.

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the simplicity of a Horse's food, which consists chiefly of herbage and grain: If this be good of its kind, and rightly dispensed, if it be well proportioned and well-timed, and the other requisites abovementioned carefully attended to, Horses would in such circumstances seldom contract hurtful diseases as they often do; and even notwithstanding the many errors committed by neglect, ignorance, or over-carefulness, I have observed, that their diseases, are for the most part, not near so much complicated as those of the human Body, tho' by the ignorance of the generality of our practitioners, they often prove more fatal.

The Signs
of Health
in a Horse.

Now it ought to be laid down as a pretty sure maxim, that when a Horse is perfectly well and in good plight, that is, when a Horse eats a moderate allowance of Hay and Corn, when he drinks a moderate quantity of water, indures his exercise well, without being faint and dispirited, when his exercise does not take him off his Stomach, but rather quickens his appetite, when his coat lyes smooth and looks wholesome, we may reasonably suppose, nay even conclude, such a Horse to be free from sickness, and therefore to give him any thing to prevent sickness or disorders, must in a great measure be superfluous, if not hurtful.

Physick
no ways
necessary
to Horses
when in
Health.

Some are not satisfy'd, when the Horses have all the usual signs of health, but order them to be bled and purg'd often, whether they really stand in need of it or not, according to a rivetted custom, which seems to prevail more in this nation than any where else. Others think
their

their Horses cannot continue in any degree of Health without cordial balls, which are generally given with a view to carry off surfeits, whether they be surfeited or not, to create a good appetite, and to preserve their wind. These balls being for the most part, made of warm aromatick and carminative feeds, with some few pectorals, are harmless enough, especially in the small doses usually exhibited, but are frequently needless, and in some cases, may be hurtful, especially to Horses of hot constitutions; which thing ought to be previously considered, for these above all others, require a cool regimen both of food and physick.

In *France, Germany, and Denmark*, Horses are seldom purged, unless they be some way or other diseased, but have alteratives given them to sweeten and invigorate their Blood. The use of the liver of Antimony, we have chiefly from the *French*, who have it in good esteem for their Horses, and deal as much in that as we do in purging. The *Italians* seem to have little or no notion either of purging or alteratives, by what I have seen of their writings, but take much notice of the temperaments of Horses, after the manner of the ancients, *viz.* the sanguine, melancholick, phlegmatick, and choleric, and have assigned remedies for each, and have also laid down the signs to know when either of these are predominant. Indeed whenever a redundancy happens of any of these Humors, a Horse may then be looked upon as diseased, and the redundancy ought to be check'd or removed. But the natural tem-

The Method of
easing
in some
Foreign
Countries.

perament and disposition of a Horse, can be no more altered, than his colour can be changed from black to white, or from brown to grey.

The *Germans*, but especially the *Danes*, and *Holfteiners*, give often, by way of prevention, powders made of warm aromatics, with plenty of juniper and bay berries, mixed with a proportion of common salt, which perhaps may be agreeable enough in their cold country. The *Hollanders* do the same, and in the provinces where they manufacture the Rape Oil, they feed their Horses with the rape-cakes, which they reckon wholesome, and indeed when these are join'd with their diet, they make them extremely fat and sleek, but their flesh is no ways solid and durable.

I have never seen any books published by *Spanish* authors on the diseases of Horses, which may probably be owing to the genius of the *Spaniards*, who are not so much addicted to writing as other polite nations; but those gentlemen of my acquaintance who have been in *Spain*, all agree in this, that no people in the world are more careful of their finest Horses than they. The *Spaniards* feed their Horses very much with green barley, and other green herbage, which that country, especially the south parts, produce almost all the year more or less; and we find the *Arabs* and *Moors* of *Barbary*, follow the same method, and depend more on the changes of diet, exercise, and good dressing, for the preservation of their Horses, than on any kind of physick, whether cordial or alterative; and where we give hay and oats, they feed

feed with barley and straw, these being the product of those countries, as hay and oats are the product of ours. They are very curious in their grooms, and allow one to every fine Horse, who is continually employed about him in dressing, feeding, and currying, and in watching against all accidents; and as the business of these fine Horses is seldom more than play, they are therefore seldom subject to sickness, but when they happen to fall sick, none are more solicitous for their recovery than the *Spaniards*, but especially the *Turks* and *Arabians*, who are then very liberal in their cordials, and it is evident many things in the practice of Farriery, have been borrow'd from the *Arabians*, especially cauterizing, and firing, and making of rowels, and issues, which we easily gather, by perusing the books wrote by the *Arabian* Physicians; and we may also observe, some of the finest Horses that come from *Turkey*, *Egypt*, or *Arabia*, to have been fir'd when they were colts, meerly to strengthen their Limbs; and the same may be also seen on the *Barbs*, and on some *Spanish* Horses, who have learned that custom from the *Moors*, from whom they have probably had their best breed.

But with respect to our own Horses, I believe none are better fed than they; we have, perhaps, the best corn and hay, that is to be met with in any country. Our oats, when they are well ripen'd or kiln dry'd, make a more hearty durable diet than barley, and are much more suited to the constitutions of our own Horses, as we find by experience. Our climate being the

Our Pro-
vender
suited to
the Con-
stitutions
of our
own
Horses.

most temperate, the hay is generally well got, without excessive heat, oftentimes in dry weather, with fine fresh breeze, and without much sun-shine, whereby it retains all the virtues of the herb; for tho' it is become a proverb, to make hay while the sun shines, yet this ought to be understood, not to lose the opportunity of fair weather, for hay, and all other herbage is best, when dry'd in the shade. Indeed some parts, from the nature of the soil, produce but indifferent hay, and in very wet seasons a great deal of hay is spoil'd; yet the rains are seldom so universal, but that we have always sufficient for our best Horses, and seldom want grass of various kinds in the season, as often as it is required; so that if our Horses suffer by their diet, it is not so often owing to the quality of their food, as to the quantity, either giving them too much, or too little, in proportion to their labour.

The
Qualities
of Hay.

I need not acquaint any one who has been conversant about the feeding of Horses, what sort of hay is the best, and most wholesome, since it is so well known that the hay which is hard, of a pale green, and fullest of the herb and flower, is always to be prefer'd to that which is soft and without flavour; though in some seasons, and in some particular places, the hay will be good and sweet, when much of the flavour is lost, which frequently happens, by its standing too long on the ground waiting for fair weather, or for want of hands to get it in before the flower drops; and this is pretty universal, when the rains fall immediately

diately before the hay-harvest, or in hot scorching suns without clouds.

When the hay is forc'd to be got in, in very wet weather, a great deal of it is apt to be mow-burnt. Horses will eat this sort of hay as soon as any for a change, unless when it happens to be very much smatch'd indeed, neither do they receive so much damage from it as some imagine, though I should not chuse to give mow-burnt hay for a constancy, because it is apt to bind, and make some Horses too costive. However I have often allowed it to sick Horses, when they would relish no other; for when this accident happens of taking fire in the mow, if the flower was not dropp'd before it was cut down, it is no ways disagreeable either in taste or flavour; and in this case, I always prefer it for sick Horses, either to new or soft hay, for it excites them to drink plentifully, which is always a great benefit to them, as the drinking helps to dilute their Blood, and to promote the glandular discharges.

New hay is never reckoned fit for any but working Horses, for till hay has sweated out its superfluous moisture, it abounds with crude viscid juices, which are hard to digest, and therefore may cause sickness, or breed impurities in the Blood; so that is not fit to be given till the spring, or at least till after *Christmas*, to Horses that are not in hard labour or strong exercise, for then it becomes dry and brittle, and the faint smell wears off, which till that is gone, both renders it unpleasant and surfeiting.

RyeGrass
Hay.

Rye-grass hay is seldom given but in the months of *August* and *September*, except to the horned cattle. Before *Michaelmas* it is tolerably hard and dry, especially in dry seasons, and many feed their working Horses with it mixed with dry clover, but afterwards it imbibes so much moisture, that it becomes unwholesome, and few Horses that have been used to good Hay will care for it. As for clover, either green or dry, it is extremely surfeiting, unless it be given sparingly, though most Horses have a good relish to it, and when they are suffered to eat much of it, often produces cholicks, and many fatal disorders, which the farmers who feed most with it, often experience among their own Horses to their cost.

All kinds of hay should be given as fresh as possible from the stack, especially in winter, or in wet seasons, for at such times, even the best will imbibe a great deal of moisture, and soon turn soft and musty in the hay-lofts.

Many Horses will not feed well upon it, and when they do, it often proves injurious and hurtful to them. Soft hay of all others, imbibes moisture the easiest, and retains the effects of it the longest, which generally turns it rotten and unwholesome, and so affords but a crude faint nourishment, and those Horses that are forced to feed upon it for want of better, are generally weak and faint, and in time grow diseased if they continue long in the use of it. When the grass has stood long on the ground, so as to become somewhat decay'd at the root, as happens in wet seasons, waiting
for

for fair weather to cut it down, that hay always proves bad, rotten, and full of dust. When the Feeder can have no better, he should be careful to shake the dust out of it as much as possible; for besides that the dust is unpleasant to a Horse, it is also very hurtful, and no kind of diet is more apt to breed vermin. Long hay is more dusty than short, even though it be well got, and should be well shook before it is put down into the rack. The short hay is always the best, and generally full of seed, and needs no preparation; for the hay-feed, when sweet and dry, will never hurt any Horse, and when it falls into the manger, they will often lick it up, before they begin to eat their hay. This is commonly the produce of dry summers, when the hay is always the best; but because such seasons yield but very short crops, the hay generally rises to a very high price, nevertheless a little of it goes a great way in feeding.

Hay is a material article in a Horse's diet, and I have observed from experience, that fewest Horses fall sick, or contract evil distempers, when the hay is universally good.

Oats are the next thing to be considered in a Horse's diet; they are of a middle nature between wheat and barley, and agree perfectly well with our Horses, and are so pleasant to Horse's palates, that I never knew any foreign Horse that had been used to barley and other kinds of grain refuse to eat them. Whereas many of our Horses will not relish barley, unless it be scalded, or when they are suffered to be very hungry, and even then do not eat it with
plea-

Oats, their
properties.

pleasure. Oats are cleansing and opening, and inwardly healing, and our Horses seldom receive any damage from their oats, unless they be given with too liberal a hand, and then they are looked upon to be heating; besides, when Horses have too many oats given them, they are apt to eat little or no hay. But this seldom happens, excepting in places where hay is scarce, or not good of its kind, and oats plentiful; but Horses that eat little hay and many oats, tho' their flesh is generally firm, yet they seldom carry any belly, and if they have not a good deal of exercise, are apt to fall into fevers, or breed surfeits.

The oats are generally good all over *England*, but are best in the north parts, for they thrive most in cold moorish grounds; and in some countries are the chief product. Those that have a thin shell, and not large and husky, feel heavy in hand, and rattle when poured into the measure, are the best. The ship oats that come to *Bear-Key*, are chiefly from the northern counties, but are sometimes musty and unwholesome, and lose their whiteness by the water-carriage; but when they are put into dry granaries or dry lofts, and spread out on the floors, and often turned and sifted, they frequently recover their sweetness, and may be given with safety; yet I should always prefer the freshest and newest oats, especially to fine Horses, tho' they may be worse in kind; and where they abound in husk there needs no more than to increase the allowance. Some prefer the black oats to the white, but I believe the

the difference is but small, only that in some places the black are more firm and hard than the white, and have a thinner shell, and in those places they generally sow a superior number of black oats among the white, though the white that grow up with them are not much, if at all, inferior to the other, which shews the difference lies chiefly in the goodness of the seed and the fitness of the soil.

Beans are another part of our Horse's diet, which, however, are chiefly used in mixture with bran or chaff, and by some upon the road with oats; but they are mostly given to Coach-Horses, and others that are constantly in draught. They afford the strongest nourishment of all other grain, and will enable Horses to go through a great deal of heavy labour; but in some seasons they breed a kind of vermin, which the farmers call a red bug, and is reckoned dangerous, and therefore the best way at such times is to have them well dried and split, which may in some measure destroy the malignity that is ingendered in them. I need say nothing of peas, which I have known given to working Horses in places where they grow in great plenty, these when they are hard and dry having a near affinity to beans. Neither need I mention pea-straw, or pea-ham, as some call it, which the farmers give to their Cart-Horses, as a refuse that would lie on their hands, and be fit only for dung if they did not put it to that use. The farmers also give their Horses a good deal of chaff among their oats, which is not amiss when it is sweet and fresh; but if it happens to be

Beans,
their pro-
perties
and use.

Peas.

be old and musty, it is apt to breed vermin. And even the best chaff when it is given in too great quantity to Horses that do not work, it makes them grow pot-belly'd, and if long continued, will breed foul Blood and turn them diseased.

Bran, its
use.

Bran is a useful ingredient in a Horse's diet, if discreetly used, and when scalded is a kind of panada for sick Horses. But nothing is worse than a continued use of bran raw or scalded, as it is apt to relax and weaken Horses Bowels too much, and thereby expose them to many evils; and I am apt to believe the *Bots* that are so troublesome to many young Horses, in the months of *May* and *June*, are owing to musty bran and chaff, with the other foul feeding given to make them up for sale in the spring, and therefore one can never be over careful in feeding with bran, to see that it be new and sweet.

The next thing I am to consider, is the feeding on grass and other green herbage, of which our grounds afford sufficient store of various kinds. And this indeed seems to be the most natural food of Horses, as well as of many other brute creatures; but by reason of the coldness of our soil and climate, our grass is not so nourishing as to strengthen a Horse for hard labour, without an addition of dry provender. However, most of our spare Horses in the country are kept pretty much at grass, both to save charge and trouble, where for most part they do pretty well, especially those that are habituated to that kind of living. Many Gentlemen keep their hunters abroad all the year with
good

Feeding at
Grass, &c.

good success, where they have a stable in some convenient dry field, with hay at all times for them to come to when they please, and where they can shelter themselves from the inclemency of the weather. These Horses are seldom sick or diseased, and as they move and rest themselves at pleasure, so their limbs are always clean and dry, and with a feed or two of corn, do their mornings work, and go thro' a chase as well, and frequently better than those that are kept constantly in the house, and have a great deal of airing and dressing bestowed on them.

Our farmers also keep most of their Horses abroad in the winter, where they take their chance till the frost and snows comes on, or when the weather happens to be very rainy that the grounds grow potchy, and then they fodder them in their yards or near their houses, so as they can come into the stables or under shades which some build for the conveniency of their cattle.

But those who have not such conveniencies of their own ought to be at some pains in procuring grass for their Horses, and proper places for them to run in the winter; when they have no use for them, especially such as live in *London* or other great towns, that the grass be sweet; for rank sour grass is rather worse than the hay that comes off the same ground, provided it happens to be well got, and in a good season, the viscid moisture and other qualities that are noxious in the herb being in some measure evaporated, or according to the vulgar phrase, sweat-
ed

The properties of
grafs.

ed out in drying. That grafs is always reckon-
ed the best which is short, thick, and on dry
but on fertile ground, that needs little ma-
nure, especially such as has always been made
use of only as pasture, and has little or no other
dunging, but what the animals themselves leave
upon it. Therefore most Horses thrive better
on commons, or on the grafs that grows near
commons, than on meadows that have been
often mowed, and have had great crops of hay
taken off them from time to time; and there-
fore must either be manured or sowed afresh
with clover. For though Horses will grow fat
upon such grounds when they have good water;
yet they are not apt to hold their flesh nor to
stand so well afterwards, unless in very dry
seasons, when they feed altogether on the root,
on which bare pasture Horses will grow ex-
tremely fat, as I have often observed. For the
roots of most kinds of grafs are extremely
cooling and agreeable to the constitutions of
Horses, and have more of a diuretick quality
than the herb.

The fields which lie near great towns and
are much dunged, cannot be so well recom-
mended either for hay or pasture, as those that
lie more in the country and are not so much
forc'd, nor so much exhausted with heavy crops:
and I have often observed where the grounds are
naturally poor, that tho' the loads of dung will
make them yield a plentiful crop to the owner,
yet it often proves injurious to the Horses that
feed upon them, especially if they go the whole
summer. For in the spring the grafs is more
tender

tender and full of sap than afterwards, and rises in such plenty that they can easily pick what they like best, without receiving much damage, if any; but afterwards, when they come to have less choice, and are forced to take up with what they can find, many of them decline and grow pot-belly'd; and these effects are always the most manifest where the ground is naturally poor and barren, and has been newly manured with dung. A poor soil that has been much impoverished, and produces nothing but what has been forced, contracts a kind of distemper or diseasedness, and may be fitly compared to a man or any other animal, that becomes sick and surfeited with great meals, after he has been a long time half starved. For in many things there is a near affinity between the earth and the vegetables that grow upon it, with the bodies of animals.

I knew a considerable grass-farm that had been many years neglected, first by the tenant, and afterwards by one who was entrusted by the landlord to look after it, whereby the ground, which was naturally poor, became so barren, that it produced little or nothing but moss, and was grown so bare in places, that the stones and gravel appeared on the surface when the grass was fit to be cut down. While the ground was in this poor condition, above forty Troop-Horses with which I was concerned, fed upon the aftermash two summers with very good success. The third year the farm fell into the hands of a more diligent and industrious person, who loaded it with dung, which

which he procured in great plenty from *London*. About the same number were sent that year also as soon as the aftermash was ready, and the first time I went to see the Horses there I observed a very great increase of grass, but it looked patched in many places, of different colours, some yellow, some of a very deep green, and some blackish, occasioned by the dung which had been laid on in great quantities, and was not sufficiently incorporated and imbodyed with the earth, like a surfeited carcase broke out in boils and sores. Many of the Horses, after their purgation, grew pot-belly'd, which gave me some apprehension of danger, and in a little while after two of them were sent home sick, notwithstanding all imaginable precautions were used to prevent it, by plentiful bleeding; but after the *September* rains, that the young aftermash grass sprung up in great plenty, several more Horses were seized with the Yellows and other bad symptoms, which obliged us to bring them all home very suddenly; notwithstanding which many of them fell sick the following winter, while those that had been upon duty and had not been abroad at grass, continued perfectly well. And thus we may gather from examples of this kind, that in grazing Horses the poorest ground will, if it be of a kindly sort, produce wholesome nourishment, by which they will thrive better than on the richest soil; especially when it is made so by mens industry, to produce large and plentiful crops.

Many Horses are also injured by running at grass upon cold clay grounds, of which I have
met

met with frequent instances ; for though these may afford plenty of grafs, and need but little manure, yet that grafs is not very agreeable to Horses that have not been accustomed to such kind of pasture ; tho' the hay that grows upon clay grounds is oftentimes very good and wholesome, especially when the clay is not too strong, and when there has been some frosty seasons to mellow it. But if Horses are turned out upon the clay, they ought by no means to run late in the year, but should be taken up before the latter rains ; for unless they be uncommonly hardy, they may receive great damage, because the water never sinks deep enough in the winter on such grounds, but is apt to lodge too much on the surface, so that the Horses that feed on these in the short days lie extremely wet ; and indeed the clay is so injurious to some Horses, that I have known them suffer greatly, notwithstanding they were constantly taken up in the night, and brought into the house.

The salt marshes along the river *Thames* are certainly as good pasture for Horses as any we have about *London*, where many run all the year round with good success in open seasons, of which I have had sufficient experience ; and this I think is the surest rule to go by. Tho' the air that comes off the marshes is very injurious to human constitutions, and subjects them to annual returns of the ague, and sometimes to palsies ; yet it has no such effect upon the brute creatures that feed on them, which may be owing to the diuretick quality of the salts, with which that grafs is more or less im-

The salt
marshes.

pregnated as the tides rise higher or lower upon them. The marsh soil is for the most part a composition of a very fine light mold, mixed with sand, covered all over with a fine trefoil, which sows itself and grows extremely thick in some places, as we see it on some parts of our finest commons. If the rains fall never so heavy, the ground being open drinks it up immediately; so that the cattle always lie dry upon it, even in winter, when most other place are potchy, which is one of the greatest benefits of all others to Horses at grass. They purge more there, both by dung and urine, than on any other pasture, and afterwards take on a firmer flesh; so that those who send their Horses there only to cleanse them, and after purging remove them to other pastures, unless it be for some particular conveniency, are greatly mistaken; for I have known several Horses run there summer and winter, and as few accidents happen to them as any where else. Four and twenty hours constant rain in the grass season will often bring up grass in the marshes, unless the weather be extremely cold. And Horses often grow fat on the best marshes, when they are eat so bare, or burnt up in dry weather, that scarce any grass is to be seen on them. In winter some never house them, but let them run abroad and take their chance in the open fields, where there are neither trees nor hedges to cover them, and yet they seldom suffer any thing from the extremity of the weather; and unless the ground be covered deep with snow, they allow them no dry forage, and will for the most part be found in good case, even in the months

months of *December* and *January*, when they have nothing to feed on but the roots.

All the water they have to drink is for the most part brackish, which at first is not very agreeable to Horses that have not been used to it, but afterwards they come to relish it as well as any other. The greatest danger on the marsh grounds is from the deep ditches made to run off the spring tides, some of which have their bottoms full of a kind of loom ingendered by the weed, which comes into them in great plenty at high-water. And if a Horse that is a stranger to these grounds, happens in leaping or any other way to step into one of them, he may run the hazard of being lost, unless he be discovered in time. Sometimes Horses have been washed away with the spring tides, by going too near the dykes; but these accidents seldom happen, not only because the marsh-men are always upon the watch at such times, but most Horses have generally so much sagacity that themselves are soon aware of the danger, and will very carefully avoid it.

But though we have perhaps the greatest variety of food for our Horses of all kinds both of grass and dry meat, and in the greatest plenty that is to be met with any where, nevertheless many are but indifferent managers in dispensing it, for want of sufficient knowledge and experience in such matters. And therefore I shall lay down some general rules which may be of use to preserve our Horses from sickness and accidents, and shall at the same time go as far into particulars as the nature of the subject, and

OF FEEDING and EXERCISE.

the design of this Essay will allow. Wherein I pay the greatest deference to those Gentlemen who in a particular manner take pleasure in their Horses, and visit them often in their stables, and direct their feeding and exercise with great skill and judgment; whereof I have frequently had opportunities of being myself an eye-witness, and have learned many things of them which I doubt not will make what I have to advance on this subject the more useful to the publick.

Directions
concern-
ing feed-
ing in the
house.

Now as to the exact quantity of hay and corn which is to be given to any Horse, that cannot be certainly ascertained; but every man must use his own discretion, as he finds what the constitution of his Horse will bear. For some Horses are much better feeders than others, and at the same time require more food: Other great feeders must be stinted in their diet, when it only produces a bad Blood, and fills them full of humors, or endangers their Wind. Horses require less food when they stand in the stable, as happens sometimes in bad weather, without exercise, or when Horses have but little Exercise; and it ought to be a constant rule, to feed Horses in proportion to the work and services required of them: And therefore all Hunters, Coach-Horses, and Horses that are much upon the Road, or work hard in any kind of drudgery, should be well fed, otherwise it is impossible they can go through their business to the owners satisfaction.

Horses
that
mangle
their Hay.

When a Horse mangles and leaves his hay, and yet has no manifest signs of sickness, that generally

generally happens, either from his having too much hay given him, or too much corn, which kind of management makes some Horses loath their hay; and therefore, when that is the case, his corn should be abridg'd, neither should his allowance of hay be augmented, till he recovers his appetite, otherwise he will by degrees fall so far off his Stomach, that he will lose his Belly, and look miserably, and nothing will recover him but grass, or some other change of diet.

Young Horses that have strong appetites, and have not done growing, should be indulged more in their feeding than those that are come to their full growth and maturity; and if their Exercise be but little, so as to oblige their Diet to be lessened, in that case, it will be convenient to lay a little sweet straw before them often, for a young Horse that has a craving appetite, is never easy to stand to an empty rack, but will always be in some mischief, either intangling himself in his collar, or kicking against the stall, or against the posts, and some are continually nibbling the rack and manger, and in the end turn Crib-biters, which is as bad a mischance as can befall a Horse. This seldom happens but to Horses that stand idle, while they are breeding their Teeth; working is the best thing to prevent it, but where Horses have but little work, which is often the case of Troop-Horses, and some Coach-Horses, I should advise them to have a little fresh straw constantly in their racks, when they have eat up their allowance of hay, and sometimes to be

Young
Horse: of
strong
craving
Appetites
how to be
managed

The advantages
of Exercise.

strap'd back, to keep them from this ugly trick, which at last grows into an incurable habit.

But Exercise duly given to Horses that are well fed, is not only the best means of all others, to prevent ill habits, but to preserve them in a perfect state of health : For Exercise converts the food into good and wholesome nourishment, it promotes the circulation of the Blood, and all the glandular discharges, so as greatly to enliven the Body, and to make way for fresh supplies of aliment. It invigorates the spirits, gives strength and firmness to the Muscles and Sinews, and enables a Horse to endure labour. And when Exercise is given abroad, in an open free air, it adds greatly to a Horse's vigor, and prevents any disposition to putrid cohesions in the Blood, which a close stagnated air often produce, and this especially when Horses are young, and their appetites strong ; for indeed when Horses grow old, their appetites are more moderate, and rest is oftentimes more agreeable to them than labour. Nevertheless, exercise is, more or less, absolutely necessary for all Horses, young or old : for we may observe, even old Horses, when they lye much still, tho' they are not apt, as young Horses, to turn directly sick, and fall into Fevers ; yet as their Blood grows poor, and languid with age, they become subject to many infirmities, as swellings of their Sheaths and Bellies, with other dropical symptoms, and sometimes to obstinate eruptions on their Skins, which Exercise in a proper degree often prevents.

Horses,

Horses, by their natural activity, are every way suited to exercise and labour, and in that respect are more useful than any other of the brute creatures; only it depends on us, how they are to be treated, both for their own preservation, and our benefit. I have already observed, that a Horse's food, ought always to be proportioned to his Exercise. But the time and manner of his Exercise is also to be regarded, for if a Horse happens, either to be work'd at an unseasonable time, or beyond his strength, it will be more injurious to him than if he had not been work'd at all. Therefore this general caution is always needful, *viz.* never to ride a Horse hard, or put him upon any violent exercise, when he has been newly fed, and has had his Bellyfull of meat or water, but should be mov'd out at first gently, and he will naturally mend his pace, as his food and water begins to affuage, when his rider may urge him on to further speed, as his business may require.

The right
time and
manner of
Exercise.

I need not tell any one, that when a Horse is hot with riding, or any other sharp laborious Exercise, he should be cool'd by degrees, this being known to almost every stable boy, from custom and use, tho' it is often neglected, through ignorance or idleness, or done with little judgment. And therefore, when a Man has travelled hard upon a journey, or when Horses have been driven hard in a coach or chaise, it is not sufficient, after they come to their bating place, or to the end of their day's journey, to walk them about in hand for half an hour or more, which is usually done, but their pace should also

How
Horses
are to be
managed
in Hunting
and on the
Road.

be slackened for a mile or two before they come in, and after that, should be also walk'd some time in hand, that they may cool gradually before they are brought into the stable, with a thin cloth laid over each, if they have been used to it. This is the safest way with young Horses, that have been kept well, and have work'd but little. And when such Horses come late to the end of their day's journey, or when the weather is so bad, that they cannot be walk'd about in hand, they should then be well rub'd all over their Bodies and Limbs, till they are quite cool, without taking off their harness and saddles, and then clothed, for when all the smallest Blood-vessels are replete and full, as they must unavoidably be in all strong, and especially in long continued Exercise, and the Blood extremely heated, and running like a torrent, any sudden chill or damp will produce stoppages and obstructions, where the vessels are the most minute and small, or wherever there is the greatest weakness and relaxation, sometimes inwardly in the Lungs, sometimes in the Liver and Kidneys, and sometimes in the Stomach and Guts, and other membranous parts; and this is usually followed with inward pain, and inflammation, or with great dulness and heaviness, which in the end, often produce many untoward disorders; or if the Limbs happens to be weak and relaxed, the Blood and Juices will soon drop down and stagnate there, so as to produce Swellings, and sometimes Ulcerations, that are troublesome enough to remove, especially in those that have been little accustomed to such kind of labour; for

for habit and use, in continued Exercise, alters the case very much, because that strengthens and invigorates the Nerves and Sinews, as we may observe in some hackney or job Horses, which are so season'd to their work, that scarce any thing can hurt them. Indeed some of the job Horses, that we see endure so much labour, are naturally strong, and very hardy, and have at first been carefully managed by their owners, who are not able to bear the loss of cattle, as Gentlemen or Men of fortune; and therefore we see them generally, both begin and end their work with great coolness, and when they chance to meet with Horses that they find unable to go thro' their hard work, they usually make their business only a meer play, that they may not lose their Flesh, until they can dispose of them to the best advantage.

Another necessary caution for the preservation of our Horses, is never to feed them too soon, after they have been heated with Exercise; for as to water, I believe I need give no precautions about it, because few are so ignorant as to give Horses water while they are hot; nay, some are so fearful in this respect, that though they travel gently, and continue several Hours upon the road, yet will never suffer their Horses to cool their Mouths, if they are never so much parched and dry; which is a great mistake, because Horses that travel or work but gently, may be indulged with water at any convenient place, and often suffer for the want of it. But with respect to feeding Horses when they are hot, it should be considered, that the Blood-

vessels

vessels of the Stomach are then replete and full, and oftentimes heated and inflam'd, and requires some time, before a Horse is in the capacity to receive food, without being injured by it. And I believe most Men of weak digestions may experience something of this in themselves, that when they have been over-heated, they have no great inclination to eat, until they grow cool; and if they happen to eat before, they will be the worse for it. And I have observed the very same difference in Horses, tho' in some much more than others; and therefore, in all such cases, should have nothing at first but clean hay, given them by handfuls, and at proper intervals, until they are perfectly cool, and then may have both their water and meat in sufficient quantity; only with this caution, that if they are to travel further the same day, their feeds should be but small, and at night a full feed given at twice, which every one will find by experience the best way, to go thro' their work with safety.

The method usually made use of in feeding Coach-Horses upon the road, by giving them bran, with a few beans, before their oats, is not at all amiss, because their work makes them perspire so very much, that without something of this kind, they would be faint, or apt to grow costive in long journeys, which would be injurious to them. The bran keeps their bodies open, and the beans is a stay, to keep the bran from scouring, which is another extreme Horses of weak Bowels are apt to be subject to on a journey, and is no less injurious than Costiveness; but then care should be taken, that
the

the bran be fresh, and the beans old, for nothing will surfeit more than musty bran and new beans ; neither should the beans be given too liberally, but only as a corrector of the bran, to make it less slippery.

Moreover, Horses that have not been much accustomed to labour, should be led on to it gradually, for habits can seldom be broke off abruptly, but by degrees ; and this caution is the more necessary, because when Horses have had but little Exercise, they are apt to increase in Flesh ; though their feeding be but moderate, yet their Flesh is for the most part, but loose and flabby ; and if a Horse in this condition, while his Vessels are relaxed, should be hard-work'd, it would be the more dangerous, because the Blood at that time must have acquired a great degree of viscidness, so as to render it unfit to pass through the small Vessels, which must therefore be distended, and the secretions thereby greatly obstructed, and prove the cause of many obstinate distempers ; and when these Horses have Blood taken from them, it is generally of such a texture and complexion, as shews their dangerous state consisting for the most part of a yellow viscid size, or of a florid high colour, extremely thick, without a due proportion of *Serum*, and sometimes black and grumy, which upon sudden brisk exercise, exposes Horses to Fevers, with inward pain and inflammation, that unless uncommon means be used, will end in putrefaction, which accidents I have frequently known happen to young Horses, that were put to business without due preparation.

And

And here it may be further observed, that the longer any Horse has been without Exercise, the more time should be allowed to prepare him for business, because the longer a Horse has been kept in indolence, his Vessels become the more relaxed, the springiness and tone of the Muscles more debilitated and weakened; so that if he escapes a Fever, or other acute distemper, yet any sudden exercise in such a state, often induces pain and weariness in the Shoulders, Hips, Limbs, and other parts adapted to motion; and this is generally more or less in proportion to the time he has been kept in an unactive state, - or according as his particular make and disposition, may render him more or less susceptible of injuries, from a depraved, sluggish, or too rich a Blood. Many instances there are of this kind, especially of Horses newly come out of the dealers hands, which are oftentimes long in the keeping of country Jockies, before they are brought to *London*, and so extremely fed there, where all things are cheap, that many of them require a great deal of management, before they can be put to any use. For though our dealers here in *London* give them a few gallops, backwards and forwards, in their own rides upon litter, yet this is but small, and no ways proportioned to their food, which they dispence with a liberal hand, to keep them in such order, as to render them the more saleable; so that too much exercise, if they had proper conveniencies, and hands to do it, would by no means answer their end. And therefore when a Horse newly bought from

Horses
newly
brought
from the
dealer,
how to be
managed.

from a dealer, or any other that has been kept a long time without sufficient Exercise, is to be put upon business, some proper preparation should be made for it, which ought to be so accommodated, as the circumstances of time and place and other requisites will allow.

Now it must be observed by the way, that the difference of constitution in Horses, may render the time of preparation for business much shorter in some than others. For some Horses are so extremely hardy, that scarce any error in the way of feeding, or any mismanagement or neglect in other respects, will hurt them. We sometimes meet with a Horse that has stood a whole winter in the stable at full feed, and in all that time has scarce travelled further than the water trough, go all of a sudden into other hands, who have put him immediately upon very hard service, without any accident, or perhaps the least failure in the accomplishment of his work, or suffering any damage by it afterwards. And sometimes we meet with instances of Horses newly taken up from winter grass or other foggy diet, perform a journey well, or even go a-hunting, without any preparation. But these instances are very rare, and seldom or never to be met with among the finest of our bred Horses that derive their Blood originally from a warmer climate, and have more of delicacy than most of our common Horses. We may also observe, even among our bred Horses, that some of them require less preparation to fit them for business than others. But as it is impossible the bottom'd goodness of

The difference of Constitution to be regarded.

any Horse can be perfectly known without a sufficient trial, and as this may also be uncertain, because sickness and unforeseen accidents may alter and change the radical constitution of any Horse, therefore the surest way is never to venture upon any laborious business until he has been thoroughly seasoned with solid food and constant exercise.

Most of the Horses that are fed for sale have the interstices of their Muscles so filled with fat, that their true shapes can hardly be known. The *Membrana Adiposa*, that lies immediately under the skin, makes a cover of fat over the whole, which gives some Horses almost the same feeling as a dropical body, soft and sometimes yielding and giving way to the pressure of the hand; and these Horses to a critical Eye have frequently no other beauty than a fine coat, which the exuberance of oily fat under the skin, warm cloathing, and a hot stable, causes to look smooth and glossy; whereas the true beauty and vigor of a Horse shews itself in nothing more than in the distinctness of his Muscles, when they appear in action, and the cleanliness and driness of his Limbs, which is greatly lost when he is blown up with fat. This treatment causes many Horses to miscarry when they come into business, and greatly disappoints the expectation of the purchasers, for if a Horse in this condition is not carefully managed, he may easily be ruined. For this of itself is a kind of morbid state, which requires great judgment and time before it can be altered.

Why so many Horses miscarry when they come first into business.

When a Horse is just come out of the hands of a dealer; or if he has stood long in a stable
eating

eating full meals, and grown fat for want of exercise, he should at first be very gently used. For when Exercise is suddenly attempted while a Horse is in this plethorick, and indeed, morbid state, it inflames his Blood, and, to make use of the common phrase, disturbs all the humours; and therefore the first thing I would advise should be bleeding and lowering his diet, which however should not be so much abated as some imagine, for a Horse may suffer as readily by too great and sudden diminution of his food, as by an increase of it, especially the weaker and more delicate sort. Walking exercise is the most proper to begin with, and this should be in the open air in good weather, for Horses that have been kept long in a hot stable, cloathed and high fed, are very unable to endure the rain, but for the most part catch inveterate colds when they go out in wet weather, a thing I have often observed; and for the same reason their stable should at first be moderately warm, and their cloathing lessened by degrees; and for want of these cautions many Horses soon begin to look very miserable after they come out of the hands of their kindest masters, who fill their Bellies, keep them in double cloathing in very hot stables, and above all, girt as close as they can bear round their bellies with broad surcingles, and never suffered to breathe any air but their own hot steam, and the steams that come from other Horses.

Exercise
after
bleeding
necessary.

This renders it absolutely necessary to take such Horses into the air, and at the same time

Exercise
in the open
air of, eat
to service.

Of FEEDING and EXERCISE.

to be careful that they may not catch cold. They should be walked in it at least two hours on a day, and the further they are carried from home in that time the better. After a week or a fortnight a Horse may be walked out twice a day, if the days are of sufficient length, two hours in the morning and two hours in the afternoon; and as his spirit and vigour increases, so his exercise may also be increased, and the further he is carried from home, the greater benefit he will receive from the air; and after he has been about a month under this usage, it will be proper to repeat the bleeding to cool his body, and to give him a feed of scalded bran two or three times a week, to keep him from growing costive, and if he refuses to eat it scalded, which some Horses do that have been much cloyed with hot meat, it may be given raw and mixed with his oats.

Signs of
thriving
and
amend-
ment.

It is always a good sign of amendment in the habit or constitution of a Horse, when his thirst and craving after water abates, for most Horses that have been in good keeping, with little Exercise, are always thirsty when they come first into business; for while their Blood is thick and fizy, their mouths are dry and clammy, and their secretions very imperfect; and a good way to prevent this and many other accidents is to feed early, that he may stand some time to an empty rack, or upon his bit, before he is taken abroad, that both his hay and his corn may in some degree be digested; for many Horses, when they are newly fed, crave after water as soon as they go out, though they have been watered before
in

In the stable; but as this disposition abates, it is a sign the constitution mends.

Another good sign of a Horse's thriving is, when his sweating abates; for every one knows that a foul Horse will sweat upon the least Exercise, and oftentimes standing at rest in his stall; but when the sweating abates, or does not turn white like a soap-lather, but runs off like water, it is generally a sure sign that his Blood and Juices are mended, for a thick viscid Blood always produces a clammy and frothy sweat. When a Horse's coat lies close and shines, when his Legs keep clean and do not swell in the stable, when his Limbs always feel cool and firm, when he feeds heartily, when he lies down and rises with a good spring, when he stretches and shakes himself: these are all signs of health and vigour, so that his Exercise may be still encreased, and at the same time he may be indulged in a more liberal diet.

But after all, some of these Horses are much more difficult to be seasoned and rendered fit for business than others; some have been so much glutted with food, and have been so long in the dealer's hands, that all the care and management in the world proves insufficient to bring them to any tolerable appetite, and while a Horse continues in this manner he is fit for no kind of use. Others will feed heartily on all that comes before them, but by reason of the extreme sickness and other disorders of their Blood fall lame, even in the mildest and gentlest Exercise. And this is that sort of lameness which is said to proceed from humours, and

The usual accidents that happen after full feeding and want of Exercise.

The ne-
cessity of
purging in
such cases.

comes insensibly without any strain or violence. Both these kinds of Horses will continue to sweat very much with their Exercise, the latter by reason of pain in his Joints and Muscles, and the former from meer debility and weakness. These are cases which often require purging and other evacuations; but this should never be gone about until the heat and inflammation of their Blood, proceeding from their previous high keeping, is abated; after which it may be done with great safety, and often with good success, except where the case is extremely obstinate indeed. A poor feeder should have his physick exceeding mild, and such as will not inflame but cool the Body, and likewise strengthen the solids, which in such a state are greatly relaxed, and at the same time may carry off the slime and crudities of the Stomach and Bowels, which weakens digestion, and by that means transmits a crude nourishment into the Blood. But where a Horse at the same time he feeds well is subject to lameness that moves from one part to another, his physick may be made of sufficient strength to reach the obstructions of the remotest parts. And indeed, I should readily advise purging most Horses that come out of the dealers hands, as soon as the effects of their gross feeding is somewhat carried off with bleeding, a lower diet, and moderate exercise; for till then purges are apt to inflame their Blood, and create many other untowardly disorders. For the same reason, I should never advise any one who buys a fine Horse from a dealer, to send

him directly to the riding-house to be loinged and put upon his haunches, until he has been cleansed and seasoned ; for though some very hardy Horses will go through this labour without any preparation, especially when they meet with gentle usage; yet I have known others that have been hurt by it, and render'd incurably lame.

We often find Horses at first catch very obstinate Colds, which pull them down and hinder their thriving, and the longer they have been in the dealers hands, the greater is their danger. I have already hinted at the reason why these are so much exposed more than others to catch such inveterate colds, and no one can be a stranger to this who has been in the dealers stables, and are any ways acquainted with horse-keeping, who cannot but observe how hot their stables are, and what addition they make to this heat by their excessive and unmerciful cloathing, and their manner of girding their Bodies with broad surcingles to make them belly well, or let down their Bellies, as they term it, which artifice greatly exposes such Horses to Colds, and to many other mischiefs whenever they come into different keeping ; and therefore this one caution may be again repeated, not to abate their cloathing too suddenly, but by degrees, to keep them at first with a double surcingle, but not to be bound tight, and so by degrees to a single one ; for a Belly that is increased by bandage, however well it may look to the eye for the present, can be no benefit but a detriment to the Horse, for which I could give demonstrative reasons from the animal structure and œconomy.

How to be managed when they catch cold.

OF FEEDING and EXERCISE.

Horses newly bought of the dealers should also be put into warm stables, in standings that have not lain empty, but where other sound Horses have stood, which is the best airing of all others for Horses apartments. And this caution is the more necessary, because the Colds that arise from such extremes are very apt to produce Fevers of the worst kind, and to leave some taint behind them, even when their Fevers go off, unless where they are managed with more skill and judgment than what is usual, and are afterwards forced to be turned to grass to have a long run there, before they are fit for any use.

A fum-
mers run
at grass
sometimes
necessary.

This leads me to take notice of the advantages Horses receive from grass, and to shew which are the Horses that stand most in need of it, and are most likely to receive benefit from it. And first of all such as have stood long in the House glutted with food, suffocated with heat and want of air, and enervated for want of Exercise, tho' they be clean fed, yet they are apt to grow so full of humours, that they require to run a considerable time abroad at grass to cleanse them, before they are fit for business; and indeed, grass is a vast benefit to them, as it is their most natural food. And when Horses do not thrive at grass, it is often owing to some mismanagement, such as turning them out of a hot stable abruptly, about the latter end of *March*, or the beginning of *April*, in the sharp easterly winds, or in the latter end of the year when the nights grow long, and the heavy rains begin to fall. I have
known

known several Horses suffer from these errors: and when it is so, the only remedy is to continue them abroad; for what damage they receive from the cold in the spring, generally wears off when the young grass comes up in plenty, and the weather grows warm. And as for those that go out in the latter part of the year, they should always be sent where the grounds are dry, and where they have stables or some other good shelter from the weather. I only mention this to those who are unacquainted with such things. And I would advise those who have fine Horses that have stood all the winter clothed and well fed in a warm stable, not to turn them out too early, for though we daily see coarse plain Horses turned out to grass at all times, without any care or concern in the owners, and come to no hurt; yet it often happens otherwise to fine Horses that have been delicately kept, and therefore these should always be prepared for grass first, by leaving off their cloathing gradually, giving them more air in their standings, walking them often abroad, or suffering them to lie on their wet litter, and at the same time lowering their diet and feeding only with hay; and where there is not sufficient time for preparation, two or three purges may be given; only in this case let the Horses have some respite after them, before they are turned out, for Horses that are somewhat reduced in their Flesh always thrive better than those that are turned out fat and full of Blood.



live altogether in town, who may turn their Horses out somewhere near at hand, whence they may be taken up at pleasure to ride short journeys, and by that means be no ways deprived of the use of them.

Horses that have been very hard worked on the road, or in any other laborious exercise, sometimes stand in great need of grass; for we often find Horses after such usage grow stiff in their limbs, breed Wingalls, with swelled Legs, staring Coats, and several other symptoms of approaching complaints, which may be better remedied by running abroad than in the house. And some of these may require it longer than others, according to the degree of injury they have received, or according to the nature of their constitutions, or the soil they go into. In all which cases rest and ease in the open air, with their cooling diet, is greatly beneficial.

Horses that are of a right mould to carry Flesh, and are past growing, which yet do not thrive in the house, may be suspected to have some beginning disorder, and therefore do best at grass; where I have known such Horses often recover, both to look well and to do good service. And I need not say how necessary grass is to Horses that have a surfeited look, especially those that do not shed their coats in a kindly manner, or in the proper season; which, if it is not owing to some inward complaint, yet at least it discovers a cutaneous disorder, that requires to be speedily removed. In such cases the salt marshes, or some very young pasture near the banks of a running river, is the most likely to succeed.

Those that have had Fevers or other sickness in the spring of the year, often require grass upon their recovery, and some crave so eagerly after it, that they do not come easily to their appetites without it; and certainly nothing restores Horses sooner after sickness than grass, because they are then prepared for new Blood and new Juices, which the grass gives them sooner than any other food. Horses that peel spring and fall, which is most apparent about the roots of their Ears, Necks, and Cheeks, the effect of some surfeit ill cured, require the spring grass, and sometimes for several grass seasons together before such deformities can be removed; tho' in some degrees, and in some constitutions, these symptoms will return annually, notwithstanding all the means that can be used to prevent them.

Many turn out Horses to grass for lamenesses, without any good effect, and sometimes they return worse than they went out, which is generally owing to some error or mistake. In all new lamenesses rest and proper applications are necessary, and also that the part should be kept from the cold and a damp air, which cannot be easily avoided at grass, at least till the weather grows warm and dry. If the lameness be in any of the joints, it always proves more obstinate than when it happens in the tendinous parts, and in the tendinous parts more obstinate than in the fleshy parts, and a Horse of spirit, when he is turned to grass for lameness, runs greater risques than others that are more calm and temperate; for these seldom take rest

or

Mistakes
concern-
ing grass.

or move so gently as to favour themselves that the parts may consolidate and recover strength, but are apt to strain them afresh, and render their case more obstinate. But hurts in the fleshy parts, and even sometimes in the Sinews, recover soon at grass, unless when they are very violent, and that some proper applications or necessary manual operation has been neglected, that should have been done before they were turned out.

Many find themselves disappointed in turning Horses to grass, supposed to be lame with humors flying about them. That is, when they become lame, without any visible hurt or known accident, which lameness appears sometimes in one Shoulder, sometimes in the other, and sometimes behind. This sort of lameness, is for the most part caused by a fizy gross Blood, which requires to be thin'd and attenuated. Many Horses, when they come out of the dealers keeping, fall lame with rheumatick disorders, as soon as they are put to any kind of business, others for want of sufficient exercise, or very foul feeding, and from many other such causes. And the reason why they often fail of success at grass, is pretty much owing to negligence in chusing a proper pasture, which should be the driest that can be found. Neither should they be turn'd out till the weather is pretty warm, for when the Blood is of itself sluggish in its motion, for want of due fluidity, the lying upon cold damp ground must naturally heighten the malady, and a very rank pasture will do the same, even when the ground
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is pretty dry ; besides when Horſe's Blood is in this ſtate, they are liable to many accidents abroad to which they are not expoſed in the houſe, for there they often range over the grounds till they are hot, to avoid the ſtinging of the flies, and get immediately into the ponds to cool themſelves, where they often ſtand a conſiderable time up to their Bellies, by which they greatly aggravate their lameneſs ; and therefore the beſt paſtures for ſuch Horſes are thoſe, where inſtead of ponds there runs ſome brook or rivulet, where they can ſeldom go above their Knees, or on ſome good dry common, or on the ſalt marſhes, and with this precaution the owner may expect better ſucceſs. But I ſhould always chuſe to bleed and purge ſuch Horſes, before they are turned out, with thoſe things that are proper to attenuate the Blood, and to promote the ſecretions of which, ſome forms will be preſcribed hereafter. And I have often found purging alone cure lameneſſes of this kind more readily than graſs, where Horſes are expoſed to all the abovementioned, and ſometimes to many other accidents. And I have known the ſame kind of lameneſſes cured by conſtant and long continued Exerciſe, eſpecially journey-riding, which from the nature of theſe diſorders, may be eaſily accounted for, eſpecially in young Horſes ; for when Horſes grow old, the ſucceſs can never be certain, becauſe the lameneſſes of old Horſes are often attended with ſtiffneſs in the Joints and Ligaments, and in many caſes, with incurable defects in their Nerves,

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But the lamenesses that chiefly require grafts, are where the Muscles of the diseased part are shrunk, and require to be kept continually in motion, with the help of a Patten Shoe on the opposite Foot, to oblige the Horse to keep his shortened Limb upon the stretch, whereby the wasted parts are sometimes again restored to their usual dimensions, and the Lameness recovered.

Horses that have been fired for Lameness, upon the Joints or large Sinews, when they have rested a sufficient time after the operation, are also the better for going to grafts, or running abroad in some open place, to prevent stiffness and contraction; some kind of bad footed Horses, especially such as have their hoofs brittle, hard and flinty, become more soft and pliable by running abroad. Those that have their Feet impair'd and cut to pieces, in the cure of Quittors, and other ulcers, and those that are worn down with travelling, or bad shoeing, are always soonest repaired at grafts, with several other defects of the like nature. Horses may likewise be turn'd out after they have been cured of the Farcy, to wear out the stiffness and callosity, that sometimes leaves a deformity on the Limbs, till all the Scabs and Scurf comes off, and the Skin and Ligaments of the Joints, where it is often deep-rooted, grow limber and pliable; but then one ought to be careful, that the Farcy is perfectly eradicated, otherwise it will soon break out again, and perhaps with more rankness than before.

Several other cases might be mentioned, wherein grafts would perhaps be convenient, as
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particularly for Colts and young Horses, which sometimes fall into peoples hands, before they are fit to be put to business. Horses that have been long costive, where all proper means have been used in vain to remove it; but what is further needful on this subject, may be left to every one's discretion, and therefore I shall now proceed to shew, what are the effects and benefits of Soiling, and how that ought to be managed.

Soiling Horses in the house, proves some-^{The use} times beneficial, and sometimes hurtful, either^{of Soiling.} when a Horse's case has not been rightly judged of, or when the stuff made use of for soiling happens to be bad. Geldings are not frequently soiled, but chiefly ston'd Horses, because it is difficult to procure good inclosures for them to run single abroad, without much charge and trouble, for two of them will seldom agree long in one place. And therefore I should never advise any one to turn Stone-Horses to grass, or soil them in the house, unless they had such complaints as absolutely requires it, for most of the disorders for which Stone-Horses are soil'd, may be remedy'd by feeding on straw for a time, instead of hay, which they will dispense with much easier than Geldings; for many of our Geldings are apt to grow faint and weak without hay, and few of them can be brought to eat straw with pleasure.

If a Stone-Horse happens to be lame in such manner, as to require a place where he may range at pleasure, then an orchard, or some field that is exceedingly well-fenced, should be provided for him; but if he has no lameness, but
some

What
kind of
herbage is
fittest for
Soiling.

some other disorder, as heat, and eruptions on his Skin, that may require Soiling, or if Geldings or Mares are to be soil'd for any such complaints, care should be taken to provide such herbage for them as is young, tender, and full of sap, whether green barley, tares, clover, or any thing else the season produces; tho' green barley is generally preferr'd to all others for this purpose, but then it should be cut before it shoots into the Ear, while it is full of sap and moisture, for afterwards it turns dry, and the stem grows tough and hard to digest. The same caution is no less necessary with respect to clover and tares, that these be young and cut fresh once every day or oftner, otherwise they may easily do more hurt than good; for tho' a Horse is so strong by nature, and more vigorous and active than perhaps any other creature of his size, yet his Stomach and Guts are but thin and slender, if compared with some other animals of the same bulk, and more easily distended, and therefore seems to require food of easier digestion, than the horned cattle, which is pretty manifest by the choice he makes for himself when at grass, and therefore when the herbage with which a Horse is soil'd, happens to be old, tho' a good feeding Horse will eat it for want of something better, yet I have several times known great disorders follow upon it, by stopping in the intestines like a bundle of small twigs, and by not obtaining a free passage thro' them, has been attended with great inward heat, heaviness of the Eyes, reeling, loss of appetite, and other

other untowardly symptoms, 'till a plentiful discharge of dung has been procured by emollient glysters, which I have seen come away in great clods, very hard, black, and fœtid, not unlike what has lain a considerable time mellowing, and rotting on a dunghill, in the same manner as happens sometimes to Horses, that are fed with rye-grass and clover, where they have not sufficient work or exercise to digest it. I have known others, perhaps where the digestive faculty has been stronger, break out about their Necks, Rumps, and other parts of their Bodies, and sometimes on their Limbs, with many other signs of a surfeit, to the great surprise and disappointment of the owners. For all such herbage, when it is divested of its sap, has very soon a tendency to putrefaction, and therefore not only induces a Lentor in the first passages, *viz.* the Stomach and Guts, but also in the Blood, causing obstructions in the small capillary Vessels towards the Skin, by its viscosity and coldness, at length producing that acrimony and sharpness, which shews itself in eruptions, an effect very contrary to what is intended by soiling. And therefore those who would succeed well in Soiling Horses, should be near the place where it is cut, that it may be fresh, at least every morning, and leave off when it becomes old and rank, or else to go on with some other herbage which is of later growth, till the Horse has been sufficiently cooled and purged.

I have observed some Horses that have purged but little in Soiling, others have purged a
great

at first, apt to turn hot and costive, which disposition is usually followed with other complaints; and therefore to avoid such inconveniencies, they ought first to have a mixture of bran, and a little chop'd straw with their corn, and sometimes a feed of scalded bran, for a fortnight or longer, to keep them cool and open; after that, they may be allowed clean corn, with plenty of water, given often in small quantities, and at the same time, should have their Exercise abroad in the open air.

But Horses that run the whole summer at grass, require more airing abroad, than those that have only been at spring grass, for the use that most people want of them in the summer, renders all cautions herein almost unnecessary; and therefore Horses of value ought always to be taken up before the long nights and latter rains, not only that they may have fit weather abroad for their Exercise, which is very necessary, but because the latter grass has little spirit in it, and at best affords but a foggy nourishment, though it often makes Horses look plump and fat. Besides, that fine thin-skin'd Horses, are seldom able to endure the heaviness of the rains, nor to lye on the wet ground, for the reasons that have been already given, but are thereby exposed to many dangerous accidents, of which I have known several instances.

Running
abroad in
winter.

Horses that run abroad the whole winter near *London*, are generally brought into some dry ground, where they have shades or out-houses to go into, as soon as the ground on which they were grazed turns potchy. Here they

they continue till the return of the spring grafs, which they are suffered to go into as soon as it is ready for them, without waiting for warm weather. This method I have often approved, and I look upon Horfes not to be fo much expofed by it, as by running late in the year, and then brought directly home into a warm ftale, whereby they often turn very thick wind-ed, occafioned by a poor vifcid Blood, from the fog that fprings up with the winter-grafs, in many of our common pastures; fometimes their Bellies and their Legs, fwell to a very extraordinary degree, and requires a skilful management to remove fuch indispositions; but this may in a great meafure be avoided, by running abroad in fome good roomly yard, and after they have had the fpring grafs, they are generally fit to go into any bufinefs without much preparation.

Thofe that run abroad in the falt-marshes are feldom houfed or brought under any cover; as I have already taken notice, and yet for the moft part do better than thofe that are fothered all the winter, who require the fpring grafs very much to repair them. I have known feveral Horfes brought up from the marshes in the winter months in good order, and have been fit for bufinefs in a fhort time afterwards. And I have been told it is no unusual thing to take up Horfes from the marshes, and fend them a long journey directly, without any preparation; and I am the more ready to believe this, becaufe I have feveral times known Horfes taken off the dry commons in winter, and perform very well on the road.

But it is quite otherwise with those that go on our common pastures, either in cold clay grounds, or where the grass is forced with dung. These, at least many of them, require a good deal of management before they are fit to be put upon any hard service; some are so foggy and breathe so thick when they come to stand in the house, that those who are unacquainted with the reason of this symptom, always suspect their wind to be going, which sometimes so happens where care is not taken to prevent it. Others swell all over their Bellies and their Legs to such a degree that they are unable to lie down, and can hardly be moved out of their standings; but this is more peculiarly the case of those that are naturally subject to such infirmities, and therefore should be kept altogether in the house, or run constantly abroad, as will be shewn more fully hereafter, when I come to treat of swelled Legs, &c.

Now it ought to be a general rule in ordering Horses newly taken up from grass, to augment their airings and exercise in proportion to the time they have run abroad, and the season in which they are taken up into the house; and as their airings and Exercise is increased, so their diet may also be augmented, both as to its quantity and solidity, *viz.* by changing from a lower diet, where there is a mixture of bran and other loose food, to clean oats and hay; neither should they at first be shut up in warm stables, but in stables that have been seasoned with other Horses, where there is a free air, and places to let it in at pleasure. And therefore I need only

add to what I have already advanced on this subject, that the longer a Horse has run abroad in the open air, the more he should be kept in his airings when he returns home; and upon this account, it is a great advantage those Horses have that are taken up after they have had the spring grafs, or even when they are taken up before that time, when the spring is advancing, when the Blood of all animals is more exalted, and in much brisker motion with the advanced season, when the weather is fine, the days growing long, and when all nature seems to have the chearfulness of youth. Whereas those Horses that are taken up in the winter-quarter have not these advantages, the days being short, the air damp, and oftentimes the weather so bad that they can but seldom be carried abroad. And if we add to this the natural decline that the constitutions of many Horses are under at this time of the year, especially Geldings, their Blood being then poor, viscid, and sluggish in its motion, we may easily perceive the difference, and experience will shew us how difficult it is sometimes to raise them up for use and service.

Some give their Horses Antimony after grafs, some Antimony and Sulphur in equal quantities, These are generally mixed with their bran, in which all powders mix more easily than with oats. Others give the *Crocus Metallorum*, or Liver of Antimony, with a view to sweeten their Blood, and to keep them open; nevertheless I have known many Horses do well without the use of these things, only by proper airings and a well managed diet. The Antimo-

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nials are chiefly necessary to Horses that are taken up in winter to warm and invigorate their Blood, which indeed is the more wanting when the grafs has been but indifferent, especially for those that go upon the aftermarsh, where a large crop of hay has been first taken off the ground. This sort of grafs is commonly thick enough and plentiful about *London* in dreeping wet seasons, and the Horses that feed upon it will be full of flesh, after the hot weather and the stinging of the flies is over; but on grounds that have been much dunged, often grow full of bad Blood, that requires Antimonials, or some other alterative, to correct it. But the dispenser of these things should be careful to get them good of their kind, otherwise they may lose much of what they aim at. The Antimony that is in large pieces, clear and shining, the colour of polished steel, is always the best, for that which is black and crumbly is not so pure, and ought to be rejected. It should not be given in gross powder, as is generally practised, but pounded till it is very fine, otherwise little of it will enter into the mass of Blood, but will sometimes, especially when given in large doses, make Horses scour more than is necessary; but when it is mixed with sulphur in moderate doses, it becomes serviceable in carrying off those Coughs Horses often bring with them from grafs about the beginning of winter, and helps to preserve their wind. The *Crocus Metallorum* is generally sold for Liver of Antimony, the difference being no other than that the latter is not so much di-

gested.

vested of its sulphurs as the other, and therefore if the first be free from the *Scoria* or dross, the dose should not exceed an ounce a day; for when it is given in larger doses, instead of promoting a moisture and breathing thro' the skin, which is the thing intended by it, it is apt to create heat and dryness in some constitutions; for when the Blood is extremely viscid, and passes with difficulty through the small vessels of the Skin and other extremities, those things that are designed to accelerate its motion, by meeting too great resistance, may sometimes retard it, and the active particles of the Antimony being thus divested of its sulphurs, may create heat, by driving the Blood into those parts before it is sufficiently attenuated to pass thro' them; and therefore when any such effect happens upon giving the *Crocus Metallorum*, that there is no kindly moist feeling on the Skin, but rather heat and dryness, the best way is to bleed and to lessen the dose to half an ounce, and afterwards to increase it, or rather, which I think the better way, to begin with crude Antimony and Sulphur, or Antimony and Gum Guaiacum; and after the Blood has been gradually warmed and attenuated with these things, the Liver of Antimony or *Crocus Metallorum* may be administered with more success.

Some purge their Horses before they turn them out to grass, and some only when they return from it. As for purging before they go out, I cannot see that this is always needful, unless when a Horse is very much loaded with flesh, and then indeed not only purging, but bleed-

In what manner a Horse is to be ordered to fit him for grass.

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them the more fit for business; tho' I have already mentioned something of the preposterous and ill-judged use of all such means, yet I shall lay down such cases wherein I think it may be needful, or at least justifiable, to bleed and purge: And first as to bleeding.

Those Horses that stand much in the stable, and are full fed, require bleeding more than those that are in constant Exercise; but especially when their Eyes look heavy and dull, red and inflamed, or when they look yellow or inflamed in their Lips and insides of their Mouths, when they feel hotter than usual and mangle their hay. These are all indications that require bleeding, and likewise to lower their diet, until they have more Exercise. Young Horses should be bled when they are shedding their Teeth, which is a relief to them, and removes those feverish heats to which many are subject at that time. The spring is always a proper season for bleeding, because their Blood is then more luxuriant than at other times, and in summer it is often necessary to prevent Fevers, always choosing the cool of the morning, and keeping them cool the remaining part of the day.

Some bleed their Horses three or four times a year or oftner, by way of prevention. These take a very small quantity at a time, not exceeding a pint or a pint and a half, only to give a kind of brisker motion to the Blood, and by that means to preserve or render it more thin and fluid, and to prevent its stagnating in the smaller Vessels, which indeed is the first beginning of almost all diseases; but how far this succeeds,
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can be best known to those who have practised it a sufficient time. However, there is this inconveniency from frequent bleeding, that it grows into a habit, which in some cases, cannot be easily broke off without hazard; and I have known Horses become weak with frequent bleeding, and some have had their Necks so full of scars, that they have been apt to inflame and fester, every time they were bled, which is always troublesome, and often ends with the loss of the Vein. And therefore to prevent such accidents, those who bleed Horses should not confine their operation to one place of the Vein, as they generally do, but use themselves to open it higher or lower, as they see occasion; and if they meet with any difficulty in bleeding the Neck Veins, the Plate Veins, or any other large Veins, that can be made to run a full stream, will equally answer the same end.

But the cases that require bleeding most, are The Cases that most require bleeding. Colds, Fevers of almost all kinds, Falls and Bruises which sometimes are dangerous to Horses, because of their great weight. Hurts and wounds of the Eyes, Strains in hard riding, or drawing, and all other accidents where a stagnation of the Blood may be suddenly expected, or where the small Vessels may be broke, and the Blood extravasated. Those that refuse their food after riding, or any sort of work, require to be bled more frequently than others, to prevent fevers, and inward inflammations of the Lungs, the Liver, or any other of the principal *Viscera*. It is no less necessary to bleed Horses at grass, when the purgation is over, that

that they begin to take on flesh, or at any other time, when they look heavy about their Eyes, for this is a proper indication for bleeding, and some rank pastures require bleeding more than others.

There are also other indications, that require bleeding by way of prevention, *viz.* when any epidemical distemper prevails among the Horses, at such times the sound Horses may be bled, to keep them if possible from being infected; and if the contagion continues, it may not be amiss to repeat the bleeding once in two or three months or oftner, but in small quantities, for the loss of too much Blood, may be hurtful in some times of contagion. It is likewise necessary to keep the sound Horses from the unsound, or remove them into places where the infection has never spread itself. I could, besides these, mention several more cases, where bleeding might be judg'd proper, even where there is no plain symptom of any beginning disease, such as plenitude, and fulness of the Veins, staling small quantities, and of a very high colour, denoting inward heat, and craving after water, and such like: and it is for the most part necessary to bleed before purging. But I shall not here enumerate any other, but leave what is to be said further on the subject, to be treated of hereafter, where the indications that require bleeding, either in diseases already begun, or where they are only threatned, will be further discussed.

Purging is another very usual and common expedient, to prevent diseases, but especially those

those accidents to which Horses are often exposed, in the common services we require of them, *viz.* to prepare them for running, hunting, or any other laborious Exercise. If the purging ingredients are good, and the purges well made, they not only bring the Blood into a better state than it was before, but by lessening the quantity of the fluids in Horses that have been high-fed, render them more strong and vigorous, and consequently more able to endure labour; but when their purges are made too violently strong and griping, they often do more hurt than good. And I believe, I need not acquaint any one who knows what belongs to horse-keeping, how much mischief has been done by purging Horses, either when the ingredients have been bad, or when the purges have been made too strong, or when they have been ill-timed; all which things ought to be regarded in purging.

Further
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Horses that are kept much in the stable, and have not Air and Exercise, in proportion to their food, require to be sometimes purged, especially in the spring, which is the best season for purging, but in case of necessity, at any other time of the year, tho' the temperate seasons are always to be preferr'd for that purpose; and these Horses that stand much, and have but little Exercise, should in some measure be prepared for their purges, as has been already mentioned, by bleeding, lowering their diet, and giving them some feeds of scalded bran, especially the day before their purges are administered;

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require it
most.

minister'd; by which they will go off the more easily, and without violent gripings.

Horses that fall off their Stomachs, whether that proceed from too full feeding, ingendering crudities and indigested matter in their Stomachs and Bowels, bad provender, or from any other cause that may relax them too much, as a long continued use of scalded bran; in all such cases, purging comes instead of vomiting to Horses. But if a Horse has been observed to feed but poorly for a considerable time, his purges should be mild, especially the first; it should not be made of the common plantation Aloes, but of the Succotrine, and mixed with diuretick ingredients, to promote the discharges by urine as well as of the dung. The same care ought also to be taken in purging Horses that are of a hot temperament, and with their fretting are easily inflamed, and lose both their appetites and flesh. These Horses often agree with bleeding, but are no ways able to endure the common purges, that are apt to cause too great a ferment in the Blood, and for the most part do not work off so kindly as one could wish; and therefore they should be mild, cooling, and well corrected.

Purging is also necessary for Horses when they have stubborn dry Coughs, that threaten their wind, those especially that are great and foul feeders. It is impossible to imagine the benefit these receive sometimes from purging, more than from all the pectorals that have ever been administered in such cases, tho' it is always
good

good to join these along with their purges. In this case, their purges are also the most efficacious, when they are join'd with some mild mercurials.

Horses that are subject to rheums, and de-fluxions on their Eyes, often receive benefit from purging. But their purges should be little more than alteratives, and such as promote urine plentifully; for strong purges, instead of doing good to the Eyes, fix the humors there, and render the case more obstinate.

A Horse that has humors flying about him, that sometimes go off insensibly and disappear, or if they break out in impostumes, and boils, that discharge of themselves, require purging, which is always necessary after such eruptions, as also after dry, or moist warbles.

Horses that have those sort of lamenesses, that are said to proceed from humors, which in some are of the rheumatick kind, but, in young Horses, are for the most part owing to a fizy blood, or to Exercise they have not been accustomed to, breaking or bruising the small *fibrillæ* of the Muscles. These lamenesses are seldom fixed to one place, as strains, violent blows, or any other kind of hurt caused by external accidents, but for the most part always appear, first on one Shoulder, and then on the other, and often with a straitness and confinement, from the Muscles of the Breast, and in cases where the Blood is in a very bad state, shift from the fore parts, to the hind parts, and in some, will cramp almost all the Muscles of the Body to such a degree, that I have seen
many

many Horses in these circumstances, rather creep than go. In this case, purging is not only necessary, but ought to be often repeated along with such other medicines, as are proper to attenuate and thin the Blood, and render it more fluid, for the want of due motion in the Blood ingenders many ill qualities in it, and produces lameness, and many other evils, which will be treated of more fully in the ensuing part of this Work, with the way to redress them.

I shall conclude with another very common case, that requires purging as much as any other, and wherein purging often proves very efficacious, *viz.* Horses of watery moist constitutions, that are subject to swellings in their Legs, which are sometimes dry, and go down with Exercise, but are apt to return and swell again, whenever they come to stand still; sometimes they break and run a sharp briny ichor, which cannot be so well removed any way as by purging, especially with such things as discharge the watery serosities in great plenty, and give a better consistence to the Blood.

A
GENERAL METHOD
OF
PURGING HORSES:

WITH

Some proper FORMS or PRESCRIPTIONS suited
to the several Ends of PURGING.

BEFORE a Purge is administred to any Horse, it is necessary some preparation should be made for it, as circumstances may require, in order to render purging the more safe, and at the same time the more efficacious, agreeable to those hints I have already given in treating of Diet and Exercise, which I shall here so far resume, as may be necessary for the instruction of those who are but little acquainted with such matters.

A Horse that is fat and full of Flesh, either from high-feeding, want of sufficient exercise; or from any other cause, it is proper, at least advisable, that before Purging he should be bled, and at the same time should have his diet lowered for the space of one week before his first Purge is administered; but this caution is more

The manner of preparing Horses for purging.

VOL. I.

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The Method of Purging HORSES.

especially necessary for those that have been pampered and kept up for sale. For when Horses in this condition have their humours stirred and agitated without due preparation, this sometimes creates disorders that may require a great deal more purging than would otherwise be necessary, and other means also to be used before they can be removed. It can never be amiss to give some few feeds of scalded bran, especially before the first Purge, that the Horse's Bowels may not be too full and pent up with hard excrements. For this sometimes hinders the operation of the physick, and creates great sickness, which ought as much as possible to be avoided; for those Purges are the most efficacious and the most safe that work off with the least sickness.

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The first purge should always be mild, unless where a Horse's constitution is well known to be hardy and strong, for some Horses are indeed so stubborn in their constitutions that scarce any thing will move them. Nevertheless mistakes of this kind may bring on a superpurgation, which is always dangerous. And there is the more reason to be cautious in purging, because Horses differ very much in their constitutions; for we often find one Horse purge violently with a dose that would scarce move another; and the same Horse will work powerfully with a moderate dose at one time, and at another will purge but gently, and this change is often owing to the state of the Stomach and Guts at the time when the Purge is administered; for when these are
foul

foul a very small thing excites them to throw off their contents, that at another time would scarce move them at all. And I have known an alterative that has not had above half an ounce of fine aloes in its composition, without any other purging ingredient, and has been designed only to open a Horse's Body, so as to make him dung like a cow, purge a Horse very much. And one may from such examples easily imagine what consequences must have followed a strong purge given at such a critical time. These things may also teach us in purging Horses, how necessary it is to provide them with drugs that are good of their kind, and sound; and likewise how needful it is that they should be well corrected, especially to Horses that are apt to be sick with their Purges, and can have no relief by vomiting, as some others of the brute creatures, and even as men, who frequently vomit with their Purges when their Stomachs are full, or in case of more than ordinary delicacy in some constitutions, whereby they are easily twitched and stimulated with the pungency of a purging medicine, so as to excite vomiting.

After premising these things, I shall now lay down some prescribed forms of Purging for the various cases mentioned in the preceding discourse, and shall begin with the following, which may be used with good success in all common incidents, where Purging only is necessary.

Forms of Purges. Take Succotrine Aloes, ten drams, Jallap and Salt of Tartar, of each two drams, grated Ginger, one dram, Chemical Oil of Aniseeds, thirty drops, Syrup of the Juice of Buckthorn Berries, sufficient to make it into a ball, which may be rolled in Liquorice Powder or Flour.

In what manner Purges ought to be prepared. The Aloes should be picked clean from its droffy parts, and then made into fine powder, the Jallap should be fresh and newly powdered, for it is apt soon to decay if it happens to be exposed in a damp place, as all roots and other vegetables are; and therefore the best way, when pounded, is to keep it in a wide-mouthed phial, well corked, and in a dry place, otherwise it may not answer expectation; whereas if this care be taken, it will always be a stimulus to make the purge work smartly, and greatly contribute to drain off the superfluous humidity from the Blood, and the finer Aloes will no less contribute to attenuate and dissolve its viscid cohesions.

This will answer all the ends of common Purging, where nothing else is required, especially for Horses that are not extremely hard to purge; and when this happens, another dram of Jallap may be added to the second purge, that is, three drams instead of two, which will seldom fail working effectually and without danger,

The manner of giving purges and working them out. All Purges should be given early in the morning, when the days are long, and in winter about eight of the clock is the best time, for working

working off their Purges about the middle of the next day, when it is the warmest and the fittest time for that operation. They should be given fasting upon an empty Stomach; and about three or four hours after, a Horse that has taken a Purge should have a feed of scalded bran, and when he has eat that up, should have a small portion of sweet hay let down into his rack, which may be renewed at proper times, according to his appetite. He may have one or two more feeds of scalded bran the same day, and if he refuse to eat warm meat, which some Horses will loath that have been cloyed with it before, he may be allowed raw bran, which, if he drink sufficiently with it, will do the business perfectly well. All his water should be made milk warm, while the Purge is in his Belly, with a handful of bran squeezed in it; but if he refuse to drink white water freely, let him have it without the bran, for his Purge will always work the more kindly that he drinks.

Early the next morning he may have another small feed of scalded bran, if his Stomach stand affected to it. But if he does not chuse to eat, which sometimes happens before the physick has begun to work, when the Stomach is squeamish, then let him drink as much water as he cares for, just with the chill taken off, and ride him gently, beginning with a walk, and afterwards a gentle trot, which will help his Purging, and make him throw out plentifully. This should be done two or three times a day, unless he purge violently; and if so, once or twice a day will be sufficient.

The Method of Purging HORSES.

A Horse in Purging should never be rode till he sweat, otherwise it will run off chiefly in sweat and urine, and indanger his catching cold. And for the same reason I should never chuse to have a Horse cloathed in Purging, with more than a single cloth, and his hood tied on very loose, that it may be laid aside without danger, as soon as he is shut up and his Purging stopped. At night he may be allowed a small feed of oats mixed with his bran, and likewise the next day, if his Purging continues. But when that is gone off, he may be fed with clean oats till the day before the next Purge, when it will be proper to feed again with scalded bran.

Most of our jockeys and grooms work off their purges with cold water, which indeed is not a very commendable way, if circumstances did not sometimes render it unavoidable. When the coarser Aloes are given, these sort of Purges make them so extremely sick, that they will not touch water, if it be the least warmed; so that it is better in such a case, to indulge them in drinking cold water than not to drink at all, for drinking always sets their Purges a working, and prevents the dangers that otherwise might happen from coarse or ill prepared physick; and indeed some Horses have such nice and squeamish Stomachs, that the same indulgence of drinking cold water must be allowed to them, even when their Purges are made of the best ingredients and thoroughly well corrected. Not that good and well prepared physick will hurt a Horse in any degree; for if it does not work sensibly in the discharge
of

The Method of Purging HORSES.

231

of great quantities of excrements, its operation may be very efficacious, as an alterative to purify the Blood; and I have often given very mild purges for that purpose only, and with very surprizing success in many cases, to Horses that could not bear stronger ones. But this is so contrary to the notions of the owners, and others concerned in them, who are greatly disappointed if a Horse's purges do not answer their expectation in the common way of emptying the Bowels, and draining off a great deal from thence, that I have myself suffered them to drink cold water, that they might purge the more plentifully.

If a Horse be of a robust strong constitution and a good feeder, he may be purged with the common Aloes, tho' I have generally myself used the Succotrine, and always advised it to others. And of the many hundreds of Horses I have purged, or have been purged by my direction, I never had one that died in physick, or ever had any hurtful accident happen to them. But I have known many Horses killed with Purging, and others have been so jaded, that they have never totally recovered; and some that overcame the shock were forced to lie by a considerable time before they could be of any great use to their owners. All which was owing either to the badness of the drugs, or to the ill-timing the physick, or misjudging the Horse's constitution.

The Aloes that comes to us from our own plantations, is called Hepatick, from the resemblance it has to the colour and variegations

The Method of Purging HORSES.

of a Liver. It is brought over in large shells of some kind of Gourd. That which usually goes by the name of *Barbadoes* Aloes, is of a dark colour and very rank smell, and so rough in its operation, that many Horses have been killed by it. But of late years we have a milder sort, which goes by the general name of plantation Aloes, which is a good deal clearer than the *Barbadoes* Aloes. This is of a much paler colour, breaks more clean and smooth, and the powder more yellow, approaching nearer to the Succotrine, but nothing near so well scented, nor in its effects so well adapted to attenuate and sweeten the Blood; but makes Horses extremely sick, and runs off so powerfully in the dung, that those who are unacquainted with the true end of Purging, are often pleased to see them work in so violent a manner.

This sort is chiefly used for purging Horses, being much cheaper than the Succotrine, which comes to us from some parts of *Afia*, wrapt up in skins. And if any one goes to an Apothecary's or Druggist's to have a Horse's purge made up, where Aloes is prescribed, they seldom make it of the Succotrine, but use the plantation Aloes, or the coarse *Barbadoes* Aloes, these being generally used for cattle. However, for Horses of small value that are hardy and good feeders, or for those of stubborn constitutions that cannot be easily moved with mild purges, the clearest and best of this sort may be used; and many give 'it without any other preparation than working an ounce before the fire,

fire, or squeezing it in a warm hand to make it into a ball, and then dipping it in oil, thrust it down without further ceremony, in a morning fasting. But I should chuse to correct it in the following manner.

Take the best plantation Aloes, one ounce; fresh Ginger, grated, two drams; pound the Aloes very fine, with the grated Ginger, and a little Oil of Amber, and make it into a ball with Syrup of Buckthorn, and roll it in Flour or Liquorice Powder.

Forms of
purges for
robust
Horses.

Or this :

Take of the best plantation Aloes, one ounce; Castile Soap, half an ounce; Ginger, two drams, or a dram of Powder of Cloves; make it as the other, with a sufficient quantity of Syrup of Roses or Marsh-Mallows. And roll it up, as the other, in Liquorice Powder.

But the following, which has so much of the plantation Aloes in its composition, as to stimulate the other, and help its operation, I have sometimes given with good success to Horses of value, that were of strong constitutions, and hard to work upon.

Take the finest Succotrine Aloes, one ounce; the best Plantation Aloes, and Cream of Tartar, rub'd together till they are well incorporated, of each two drams: Also fresh Jallap in fine Powder, two drams; Cloves in Powder, one dram, or two drams of
grated

The Method of Purging HORSES.

grated Ginger ; Syrup of Damask Roses, sufficient to make it into a due consistence ; with 60 or 100 drops of Oil of Amber.

If the Horse be of a gross constitution, two drams, or half an ounce of Castile Soap may be substituted instead of the Cream of Tartar, which will render it more cleansing and detensive ; and more safe and efficacious in carrying off bad humors, and cleansing the Blood from its impurities.

I might here insert a variety of Purges, made of other purging ingredients, besides these already mentioned. For the *Materia Medica* affords great store of such things, as Scammony, Gutta Gamba, Hermodactils, Turpeth Root, Rhubarb, and many more, which I imagine would both be troublesome and unnecessary, in regard the Aloetick purges, with a proper stimulus ; such as Jalap, or with Calomel, and other mercurial preparations, will answer all the ends of purging Horses, better than any other. But I should advise those who give Calomel, to take care that it be well prepared, and when it is either given by itself, or added to a Purge, the Horse should be kept extremely warm, with warm water, and good cloathing; but further directions will be laid down, when I come to treat of the cases that require it.

Those Horses that have a narrow swallow, or rather those who take Balls with a reluctancy, may have one of the purging Balls dissolved in a little Water-Gruel or Ale, made just milk-warm,

warm, and will come with a great deal less trouble and charge, than infusions and decoctions of Sena, Rhubarb, or any other of the purging ingredients fit for this purpose, which are very well contrived for the palates of Men, and their particular cases, but not so very necessary for Horses. Indeed laxative draughts ^{Laxative Draughts.} are often made use of in several of the diseases of Horses; but as these do not come directly under the intention of Purging, I shall omit them altogether in this place, because I shall have occasion to mention them hereafter, in those cases where they are the most necessary. There will also be inserted several other forms of Purges, suited to some particular diseases that require Purging, which will be taken notice of in their proper places; and therefore, I shall only add one or two prescriptions more, of a milder kind than those already inserted for general use, which will do better for Horses of nice or weakly constitutions, than those that are stronger, and be more safe in their effects, of which kind is the following.

Take the finest Succotrine Aloes, one ounce; ^{Mild} Rhubarb in Powder, half an ounce; ^{Purges.} Ginger grated, one dram; make it into a Ball with a sufficient quantity of Syrup of Damask Roses.

The Rhubarb will make this exceed the usual price of a Purge, especially when that drug happens to be scarce. But I believe few Gentlemen would grudge the expence, rather than run any hazard with a very fine Horse, of a delicate

The Method of Purging HORSES.

delicate constitution, especially those that are very moderate feeders, and easily fall off their Stomachs after brisk exercise, which is the case of many genteel and pleasant Horses. Three or four of these Purges will greatly help them and make them grow both in Flesh and Appetite, whereas the common Purges would go nigh to send some such Horses to the Dogs.

The following is also a very mild efficacious purge, and much cheaper than the preceding; it may be given to any constitution, and in any state where a Horse is not directly sick. It will purge some Horses sufficiently, and prove a safe and good alterative, to those that are able to bear the strongest Purges, and by frequent repetition, where time can be allowed for it, will often answer all the ends of Purging better than what is usually done with two three strong Purges, made of coarse rank ingredients.

Take of the finest Succotrine Aloes, that break of a Saffron Colour, one ounce, and two drams; Myrrh in fine Powder, half an ounce; Saffron and fresh Jallap in Powder, of each a dram; make it into a stiff Ball, with Syrup of Damask Roses, or Syrup of Marsh-Mallows; then add a small spoonful of the rectify'd Oil of Amber, make it into a Ball, and roll it in Liquorice Powder.

This is one of the safest and best Purges that can be given to a Horse; and works both by dung and urine. Those who chuse to have it work briskly, to fit a Horse for present business, may add a dram or two more of Jallap, with

with about as much Ginger fresh grated, as will lye on a half crown-piece, but I should only advise this addition, in case the first does not purge sufficiently. The Jallap works as a good stimulus or incentive, and fetches away a great deal of watry, thin; viscid humors, that greatly clog and enfeeble a Horse in his motions, and is very safe: for the same reason, it clears the Stomach and Bowels of what it finds superfluous there, and by that means creates an appetite, and promotes a good digestion.

I shall conclude what I have further to say on the subject of Purging, with some general cautions, which I believe will be found very needful, and that is, when a Horse purges to excess, not to exhibit another, till he has recovered his appetite and strength, and that he has filled himself, and does not appear lank, which perhaps may not be, till about eight or ten days after it was given. Some Horses after Purging, especially with the Plantation Aloes, do not recover their Stomachs to eat any thing for several days.

Cautions
in Purg-
ing.

In which case, it is necessary to give a warm stomachic draught or two, made of Chammile Flowers, fresh Aniseeds, and Saffron, with about half an ounce of Diascordium dissolved in it. Or instead of that, half an ounce of Diascordium, dissolved in a pint of warm Port Wine. And if, notwithstanding this, the Purging should continue, the same things may be used, which I have inserted in the ensuing part of this Treatise, for the cure of a Scouring and Looseness. On the other hand, when
a Purge

The Method of Purging HORSES.

a Purge does not work, but causes a Horse to swell, and to forsake both his food and water, which is sometimes the effect of bad drugs, or from catching cold, the only way to remedy that symptom, is by warm diureticks, for which I can recommend the following Draught.

Take a pint of White Lisbon Wine, mix with it a dram of Camphor dissolved in a little rectify'd Spirits of Wine; then add two drams of Oil of Juniper, and the same quantity of the unrectify'd Oil of Amber, with four ounces of the Syrup of Marsh-Mallows, and give it without delay.

Or the following Ball:

Take Venice Turpentine, one ounce; incorporate it with the Yolk of a new-laid Egg. Then take Juniper Berries, and fresh Ani-seeds pounded, of each half an ounce; Spermacæti, and unrectify'd Oil of Amber, of each two drams; make these into a Ball, with a sufficient quantity of Syrup of Marsh-Mallows, and roll it in Liquorice Powder.

Either of these will make a Horse stale plentifully, and at the same time set his physick a working, and by that means prevent sudden death, which sometimes happens in such cases, from not knowing how to remedy those evils. But the best way is always to administer good medicines, which will seldom be attended with such miserable effects, taking care at the same time that the Horse do not catch cold, which I have known produce a superpurgation, with
Gripes

Gripes and other disorders. It will be further adviseable when a Horse swells very much in physick, not to ride him till he has some vent, either by dung or urine; but to lead him gently in hand. For any kind of violence is extremely dangerous when a Horse is so much blown up, as I have seen in some instances where their Purges have not worked. This should also caution us never to administer strong Purges till a Horse has been well prepared for them, by bleeding and an open diet. For when a Horse's Blood is viscid and fizy, and his Bowels full of crudities, strong and coarse physick can never fail to fill his Vessels with wind and vapour, which may be more easily prevented than remedied.

The PROPER METHOD of administering
DRINKS and BALLS.

THOUGH it is in many cases unnecessary and sometimes hurtful to administer great quantities of medicines, as some persons do, from an over-carefulness or over-fondness of their Horses, and often when they stand in no great need of them; yet in several kinds of sicknesses we find Horses so dangerously bad, and their distempers so malign, that they are not easily conquered, unless their Blood can be thoroughly sated with a frequent repetition of the same things; which however, is not only troublesome to those concerned with them, but exceeding disagreeable to most Horses, who hate to have medicines continually crammed

The Method of administering

down their throats. Indeed some Horses are more pliable in this respect than others, and will take Drinks and Balls with very little trouble, and I have seen several Horses learn to eat the pectoral Horseballs with as much pleasure as their common food; but the far greater number have a natural reluctance to all such things.

Horses
drinks to
be made
somewhat
palatable.

I have frequently observed, that most Horses have naturally a sweet Tooth, and take things more willingly that are sweet and palatable than things that are bitter and of an ill taste, and therefore their medicines, but especially their Drinks, shou'd always be so contrived as to be as little as possible disagreeable and nauseous; because this always makes Horses recoil and resist all kinds of medicines. But the best way to remedy this evil, is to make up those things into Balls that are extremely bitter and nauseous, and wash them down with some proper Drink sweetned with Honey or Liquorice. This Method I have always found the most successful to keep Horses in a right humour for taking what medicines were necessary for them.

Horseball's
not to be
too large.

All the Balls that are administered to Horses, should be made into an oval shape when they are given, and not exceed the size of a pullet's egg, and when the dose happens to be large, they may be made into two. They should be dipped in Oil, that they slip down with the more ease; for striving much in thrusting down Balls greatly increases a Horse's antipathy to such things, and renders it troublesome to administer medicines to them.

Some

Some men by frequent use grow so dextrous in giving Balls, that they seldom miscarry, and without fatiguing the Horse. These are such as generally begin young, while their Hands are small, and bring that operation into an easy habit. But some Horses have been so much tired with awkward unhandy persons, that they come to resist every thing that is offered to them in that manner; others are so untractable, and so shy of being handled about the Mouth, that there is scarce any possibility of giving them Balls, without an instrument of iron to hold their Mouths open. And therefore this should always be part of a stable furniture, where any number of Horses are kept. Every stable should also be provided with a drenching-horn; it being necessary to have these instruments always in readiness, in case of accidents. The best drench-horns are those that are small and narrow in the mouth, and shaped like a spoon, wide in the Belly, and sufficient to contain half a pint, more being unnecessary for one go-down, for too large draughts are apt to strangle Horses, and sets them into violent fits of coughing, especially when they are short-breathed, and oppressed with violent colds or sickness.

In drenching Horses it is usual to draw up their Heads pretty high, with a cord fastened round the Upper-Jaw, holding up the Horse's Head in that posture till the Drink has run down into his Stomach, otherwise it is apt, with his champing, to return back and run out of his Mouth, especially when the taste is any

The manner of giving them.

Direction in giving of Drinks.

ways disagreeable to him. But when a Horse is plethorick and full of Blood, when his Lungs are inflamed, his Breath short, as frequently happens in very great Colds and Fevers, it then becomes troublesome to administer Drinks to him, and the fatigue it gives him at such times makes it also dangerous, and I have seen a great deal of hurt done by forcing down things injudiciously beyond a Horse's ability to receive them. And therefore when Horses are greatly oppressed with violent Colds, malignant Fevers, Peripneumonies, or any other oppressive sickness that affects the Lungs and Offices of Respiration, special care should be taken in administering their medicines, especially those that are liquid and given with the horn. The best way to do this effectually and without hazard, is in the first place to contrive their Drinks so as they may pass down with the least trouble and labour; and I have always found those the most agreeable and the least fatiguing to Horses, that are made by infusion, without the mixture of gross powders, which tho' they are usual with most practitioners, yet are apt to clam a Horse's Mouth, tickle the sensible Membranes about his Palate and Throat, and set him a straining violently to cough, while his Lungs are stuffed and full, and without any free and kindly discharge from the Glands; which often increases their maladies to such a degree, as frustrates all the ends for which these are given. Therefore their drinks should not only be as free as possible from such things as may set them a straining violently to cough, while their Lungs

Gross
powders
improper
in Drinks.

are sore, but ought to be made smooth with mucilaginous and balsamick ingredients, and sometimes, when the case requires it, with oils and unctuous medicines joined with proper deterfives, of which sufficient examples will be given hereafter, under each particular malady, where Drenches are necessarily to be administered.

I shall here mention other cautions that ought to be observed in drenching Horses, to save the trouble of needless repetitions when I come to treat of the diseases that require any particular management in such things, which shall be referred to as often as may be necessary in the more difficult cases.

When a Horse happens to be drenched only for a slight cold, or other slight disorder, there needs no great ceremony in the way and manner of doing it, only that the Horse be kept fasting some time before and after. That the ingredients be good of their kind, and suited to the distemper. That he have warm mashes, that he be kept dry, and no ways exposed to increase his cold. But when a Horse is inwardly sore or very much oppressed with sickness, notwithstanding bleeding and other evacuations have been made, and cannot be moved without great pain and labour; in such circumstances we can never use him with sufficient tenderness; he ought to be turned about very carefully, and stand a few minutes to rest before his Head is raised up for his Drink, and should only have one or two hornfuls at a time, and then to let his head down for about

Cautions
in administering
Drenches
to sick
Horses.

five minutes, or longer, that he may recover his breath before his Head is drawn up for the second draught, and so also for the remainder. After the last of his Drink, he should be let stand at least ten minutes before he is set forward to his rack, and then should not be turned about short in his stall as a Horse that is well or but slightly indisposed, but should be carefully put back, and turned in the stable or in the yard, where he may have sufficient room to fetch a compass, that he may not be any ways put in pain, or otherwise endangered by a sudden twisting in his Body. This method I have always followed with good success, in drenching Horses under the worst kind of maladies, and have caused them to have several draughts given them in a day, without the least inconveniency, when their distempers required them to be often repeated, and have had them frequently fed with a horn in the same manner, until they have recovered so much strength and appetite as to feed themselves.

Concerning GLYSTERS, and the Manner of giving them.

Glysters are often necessary for Horses in various disorders, and may be reduced to these different kinds, *viz.* laxative and emollient, purgative and restraining.

Emollient Glysters are those made of the decoctions of the emollient Herbs, as of Mallows, Marsh-Mallows, the herb Mercury, Pelitory, Chamomile Flowers, and such like,

The Method of giving Glysters.

245

which relax the Guts, and soften the Excrements when they are hard and dry; and when to these are added an ounce of sweet Fennel-Seed, or of Bay-berries bruised, they make the Glyster Decoction; and to make it laxative, oil and treacle, or coarse sugar, may be dissolved in the strained decoction, while it is warm, and it will open a Horse's Belly, and give him ease, by discharging the excrements and other contents of his Bowels, without pain or griping.

Purging Glysters are compounded of the same purging ingredients, of which the various kinds of purges are made, added to the decoctions of the emollient ingredients, or for want of these, to two or three quarts of fat broth. The properest purgatives for Glysters, are *Sena Colloquintida*, or Bitter Apple, Jallap, Lenitive Electuary, *Carrocossinum*, or Syrup of Buckthorn, with a handful of common Salt for a stimulus, when a speedy and immediate discharge is required.

Restraining Glysters are intended to stop violent loosenesses; they are seldom used, or indeed but little understood by the Practitioners in Farriery; but I have found them often efficacious, when no internals by the Mouth would avail, such as decoctions of Oak Bark, Pomegranate Bark, Balaustines, Red Roses, Dyers Gall, and such like, with *Diascordium*, *Mithridate*, or *Venice Treacle* dissolved in them; and to these may be added a fourth kind, which may be termed nutritive, and are of great benefit in some convulsive cases, where the Jaws are

The Method of giving Glysters.

set so close, that nothing can be transmitted into the Stomach, or where the passages of the Throat and Gullet are swell'd and inflamed, which sometimes is so violent, that a Horse is in danger of being starved or strangled, unless nourishment can be convey'd some other way than by the Mouth. But I shall only here insert one single Form of each kind, because the proper use of Glysters will be more particularly shewn, when I come to treat of the several maladies that require such helps.

An Emollient or Laxative Glyster.

Take Mallows, Marsh-Mallows, Pellitory the Herb, Mercury, and Chamomile, or such of them as can be got, of each a large handful; Bay-Berries, and sweet Fennel-Seeds bruised, of each an ounce; boil in a gallon of water to three quarts, pour off the decoction into a Pan, and dissolve in it half a pound of Treacle; and a pint of Linseed Oil; to make it laxative, add four ounces of Lenitive Electuary, or the same quantity of Cream of Tartar, or common purging Salts.

A Purging Glyster.

Take two or three handfuls of the Emollient Herbs, as directed in the preceding; Sena an ounce; Bitter Apple, half an ounce; Bay-Berries, and Aniseeds bruised, of each an handful; Salt of Tartar, half an ounce; let these be boil'd a quarter of an hour in three quarts of Water, then pour off the decoction,

The Method of giving Glysters.

247

decoction, and while it is warm, add four ounces of Syrup of Buckthorn, and half a pint of Linseed Oil.

This will purge a Horse pretty briskly, and may be given with good success, when an immediate discharge is wanting, especially in some symptomatick Fevers, in Inflammations and foreness of the Lungs, and other disorders; which require speedy relief.

A restraining Glyster to stop a Superpurgation, or any other kind of Looseness.

Take Pomegranate Bark, or Oak Bark, of either of these two ounces; Red Rose Leaves green or dry, a handful; Balauftines, *viz.* the Flowers of the Wild Pomegranate, half an ounce; boil in two quarts of Water, till one is near consumed; pour it off from the ingredients, and dissolve in the decoction four ounces of Diascordium.

This will answer in all common cases where restringents are necessary: what other helps are wanting, will be shewn when I come to treat of a Lax and Scouring.

Nutritive Glysters, or the conveying food by a pipe into the Fundament, may consist of Broths made of Sheeps Heads, Sheeps Trotters, or any other kind of meat that is not too fat, Milk Potage, or Rice Milk strain'd, or any other thing, whereby a Horse may receive nourishment in any great extremity, when nothing can be conveyed by the Mouth. These

The Method of giving Glysters.

are sometimes very necessary, and preserve Horses from starving; but ought not to consist of any thing that is too fat and loosening, otherwise they may easily frustrate the end for which they are given. They should also be but small in quantity, not exceeding a quart, or three pints at a time, but should be often repeated.

The like caution is no less necessary in administering restraining Glysters, which ought to be but small in quantity, and have nothing in their composition that is unctuous or oily, for that would also defeat the end for which they are given, and the longer they lie in the Bowels before they come away, the more efficacious they always prove in stopping loosenesses; and I have often known Horses retain them twenty four Hours without voiding any thing, and when they have dung'd, it has come away natural and of a good consistence.

Cautions
in admin-
istering
Glysters.

In regard of laxative and purging Glysters, there is no need of any great restriction as to the quantity, which may be given to two or three quarts in some cases, where the Balls of dung are black, and hardened in the Purfes of the Colon. But I would advise the Practitioner, never to be over liberal of his purging ingredients, even in those cases wherein purging is intended, especially with solutions of coarse Aloes, which I have observed to work and gripe Horses to a very great degree, even so as to excite feverish, and sometimes convulsive symptoms, and by that means, have added strength to the distemper, which they were intended

tended to abate ; and I have often remark'd, the quantity of the purgatives given in Horfes Glysters should not be so large in proportion as those given to Men, because of the horizontal position of their Bodies, which makes them suddenly draw up into the small Guts, where they sometimes cause a most violent irritation, and it is difficult to manage Horfes, when any untowardly symptoms are caused thereby ; and therefore it is always the safest way with Horfes, to increase the quantity of Oils, and other laxatives, even where purging is necessary, rather than make too bold with medicines that are very pungent and stimulating, as all the stronger purgatives generally are ; besides, that the position of a Horse's Guts disposes them to breed slime and viscid matter, in almost all their disorders, which is in most cases more safely loosened and brought away by emollients, and laxatives, than by things that are more purgative, of which I have had frequent experience.

It ought to be a general rule in administering ^{Horfes} Glysters of all kinds, that the Horse should first ^{to be} be rak'd by a person that has a small Hand, to ^{rak'd be-} fetch out the dung that lyes in the Streight Gut. ^{fore their} Glysters. The Hand should be oil'd, that it may pass into the Fundament the more easily, without hurting the Horse, which will dispose him to receive the pipe the more willingly. The Glyster should be but milk warm, for if it is more than that, it will be apt to scald, and make him throw it out immediately without any effect. The Farrier or Groom should be provided with a pipe made of Box, *Lignum Vitæ*, or any other wood.

The Size
and Form
of the
Pipe.

A Pipe
and Bag
preferable
to a Sy-
ringe.

wood that turns smooth and with a polish. It should at least be fourteen inches long, an inch thick at the nose, and an inch and a half at the other end where the bag is fastened, and the mouth turn'd into a smooth oval with little holes, in the same fashion with those used by the Apothecaries, these being preferable to any kind of Syringe, not only because the syringe pipes are generally both too small, and too short, but because the syringe throws in the Glyster with so much force, that it surprises a Horse, and makes him fling it out as fast as it goes in; whereas when a pipe of convenient size and length is made use of, the liquor of the Glyster being pressed gently from the bag, gives him no surprize or uneasiness; so that there is seldom need of doing any more in this operation, than to hold his Tail down a minute or two with one's hand, after which he will retain it till he has motions to dung; and sometimes Horses will dung two or three times with mild Glysters rightly given, before they throw them intirely out. And some will remain a long time in the Body, especially those of the emollient kind, and do great service by cooling and relaxing the Bowels, and incorporate so with the dung, that they cannot easily be distinguished from the other contents of the Guts.

The Method of Firing HORSES.

CAUTERIZING, or Firing, is often necessary after Strains and other accidents, which may occasion a long continued weakness, or where there is a fullness and the part is grown hard

The Method of Firing Horses.

251

hard and callous, especially about the Joints; Sinews, and nervous parts; those parts being composed of an infinite number of fibres and nervous threads, which lie so close together that nothing but what is of the most powerful nature is sufficient to relieve them when obstructed. This is promoted in the most effectual manner, by burning the outside, and giving vent to the inclosed matter to discharge itself, and sometimes proves beneficial when all other helps have been found ineffectual.

In Firing about the Sinews and nervous parts, great care is to be taken not to go too deep at first, but by gentle repeated razes or lines, till they come to a pale red colour; for if the fire once touches the Sinew it will make the Horse go lame as long as he lives; the same ought to be drawn pretty close together on each side the Joint or Sinew, following the course of the hair without making of cross lines, which are of no use in these parts, and are only apt to disfigure the Horse afterward.

When the more fleshy parts, or an obstinate humor, that cannot be brought to suppuration, requires Firing, the Skin ought to be pierced deeper, in order to draw away a sufficient quantity of matter from the part; the same ought to be perform'd upwards, to prevent any ulcerous disposition attending it. And in such cases little soft dossils of tow dipt in warm Basilicon and Spirits of Wine, may be thrust gently up into the orifices.

The firing instrument or knife, ought to be somewhat rounded on the edge, and gradually thicker

thicker to the back, sufficient to keep the heat of the fire for some time; the same should be rubbed clean, that no dirt or ashes may stick to it, and not used until the flaming redness is in part gone off. All the seared parts ought immediately to be bathed with Spirits of Wine, and where nothing else is requisite to compleat the cure, the place is only to be anointed with oil and bees-wax melted together.

The use of the fire, with respect to Spavins, Ringbones, Curbs, &c. is treated of in their proper places.

Some Directions concerning GELDING,
DOCKING, &c.

THE common method of Gelding, is, by applying the actual cautery, and then filling the place up with salt, which exposes Horses sometimes to accidents in these parts afterwards; the more safe way therefore is, after having opened the Scrotum or outward case, and turned out the Stones, to tie a wax thread round the strings, to stop the Blood, and then cut the strings between the Ligature and the Stone, applying to the wound pledgets dipt in the usual digestive, mixed with Spirits of Wine; this secures the vessels most effectually, and prevents that profuse bleeding, which in the former way might possibly ensue.

As to Curtailing or Docking, the chief thing is to take care that the searing-iron be smooth and well polished, and the metal well harden'd; and likewise that it be rubb'd very
clean

clean before it is used, otherwise the Scorix or sparks that fly off the iron, may cause great pain, and perhaps an inflammation, to follow; neither should it be applied flaming hot, lest it bring off the burnt part along with it, in which case it may be difficult to form an eschar. It may not be amiss to take notice, that the instrument for Docking, be both sharper and cleaner than what is common.

With regard to the Nicking of Horses, the number of incisions may be in proportion to the length of the tail, but three in general are sufficient; the best dressing at first is with powdered rosin, honey, and spirits of wine, applying a soft doffil of tow dipt in the same, between each nick, lapping the Tail up, as usual. The next morning it should be cut open down the back part of the Tail, and the morning after, taken off, in order to plat the hairs, and set the Tail; every two or three days the Tail should be let down and the upper part next the Rump bathed with hot vinegar, with a little honey, and alum dissolved in it. If the hair should come off and the Tail should incline to swell, it must be washed every day with Spirits of wine, vinegar, and the *Mel Egyptianum*; after seven or eight days it will be proper to let the Horse stand without the machine or pulley, for a few hours, to observe how he carries his Tail, and it may be necessary to keep the Tail up a few hours every day, till a callus is form'd.

P A R T III.

Of the DISEASES of HORSES, and their Cure.

C H A P. I.

Of the DISEASES of the HEAD.

IN treating the Diseases of the Head, we are to distinguish between those that are peculiar to the Head alone, and those that are only the concomitants of some other disease, which frequently affect the Head in as sensible a manner as the other, tho' not always so dangerous in their consequences.

I shall pass over the enumeration made in books of Farriery, and their conceits concerning the Diseases of the Head, which are generally full of blunders and mistakes, and confine myself altogether to what I have found from experience in various instances; wherein I may possibly give some satisfaction to those who have had any competent knowledge of Horses, and have been inquisitive to find out their distempers.

Our Farriers generally include all distempers of the Head under two denominations, viz. the STAGGERS and CONVULSIONS, which indeed are such as affect the Head, but in Horses for

for the most part, arise from parts situated at a great distance from it. But these are general and imperfect terms, which few or none of our practitioners rightly understand, and therefore we cannot expect they should often succeed in such difficult cases.

The Diseases of the Head are properly such as have their origin and immediate cause from the Head, of which kind are all those that proceed from extravasated matter discharged out of the Veins, Arteries, or Lymphæducts, either upon the Membranes that envelope and cover the Brain, or into its Sinuses or Ventricles, whether this be the effect of wounds or concussions, or proceed from any other cause, whereby the vessels of the Brain may be ruptured and broke. Sometimes the Membranes themselves are indurated and grow preternaturally hard, and distended by long continued obstructions, so as to press upon the tender substance of the Brain or *Cerebellum*; but this may also be owing to some previous accident or distemper, and in some old animals these Membranes have been found ossify'd and turned bony; all which things must cause great disorders in the Head. Sometimes these disorders proceed from a faulty Blood, when it happens to be viscid and sluggish, or when it is of unequal mixture, so as to abound with particles too gross to go along in the course of circulation, but are apt to stagnate in the *Plexus Choroides*, and other small vessels of the Brain, so as to press upon the origin of the Nerves.

Whence
the Diseases of
the Head
proceed.

But lastly, Disorders of the Head are many times owing to a Plethora, *viz.* an over-great quantity of Blood, which is often the case of Horses that are fed high, and have neither had sufficient exercise nor other proper means used to preserve their Blood and Juices in a due temperament. From these and such-like causes proceed most of the distempers peculiar to the Head, such as *Apoplexies, Vertigoes, Lethargies, Epilepsies*, paralytic disorders, and all others where the Nerves are affected so as to produce symptoms that impede sense and motion, which I shall take in their order, and afterwards proceed to those Disorders of the Head that arise from the distemperature of other parts, of which I shall produce several instances from practice, as the readiest way to give a true notion of those distempers in Horses, which usually go under the name of Staggers and Convulsions.

OF AN APOPLEXY.

IN an Apoplexy a Horse drops down suddenly without sense or motion, only a working at his Flanks, proceeding from the motion of the Heart and Lungs, which never ceases while any spark of life remains.

The signs of an Apoplexy. The previous symptoms are Drowsiness, watry moist Eyes, somewhat full and inflamed, a disposition to reel, feebleness, a bad appetite, and almost a continual hanging of the Head, or resting it in his manger, sometimes with little or no Fever, and scarce any alteration in the dung.

dung or urine. When the Apoplexy proceeds from water collected in the Sinuses and Ventricles of the Brain, the Horse has generally besides all these foregoing symptoms a disposition to rear up, and is apt to fall back when any one goes to handle him about his Head. The reason of his falling backwards seems to be obvious, because when the Head is raised with his Mouth upwards, the water in the Ventricles causes a weight and pressure upon the *Cerebellum* and origin of the Nerves, so 'as may deprive a Horse of sense and motion at once; this is a case I have often seen, but does not prove suddenly mortal. Young Horses are most subject to it, and, with proper helps and good usage, sometimes get over it. But when the Apoplexy proceeds from wounds or blows on the Head, or from any other cause producing ruptures in the Blood-Vessels, or from matter collected in the Brain or its Membranes; or if any part of the Brain or its Membranes be indurated and grown callous by long continuance, we shall not only see most of the symptoms already described, but the Horse will be frantick by fits, especially after his feeds, so as to start and fly into motion at every thing that comes near him. These cases are extremely dangerous, and seldom admit of a perfect recovery. But when Horses fall down suddenly, and work violently at their Flanks, without any ability to rise even after plentiful bleeding, such Horses seldom recover.

All that can be done in such cases is to strike **TheCure.**
theVeins in several parts at once, to raise up the

Horse's Head and Shoulders, proping them with plenty of straw; and if he survive the fit, to cut several Rowels, though in case of ruptured Vessels, or if any kind of extraneous matter be lodged on the Brain or its Membranes, all these helps will be of little service.

But if the Apoplectick Fit happens to be only the effect of a Plethora or fulness of Blood, from high-feeding and want of sufficient exercise, or if it be the effect of a fizy Blood, which is often the case of many young Horses that have been fed for sale, or from catching cold while the Blood is in this state; though a Horse in these circumstances may reel and stagger, and sometimes fall down suddenly, yet the cure will admit of no great difficulty.

First of all bleed plentifully, and keep the Horse for some time to an opening diet of scalded bran, and sometimes scalded barley, lessening the quantity of his hay. After two days repeat the bleeding, but in a smaller measure. If the Horse has a Cold it will be proper to give him pectoral drinks, such as are prescribed for Colds; but if no symptoms of a Cold appear, it will be necessary, after bleeding and a spare diet, to give him two or three Aloetick Purges, not only to remove the Plethora and fulness, but to attenuate and thin his Blood, for which I would recommend the following.

Take of the finest Succotrine Aloes, an ounce
and a quarter; fresh Jallap, two drams;
Salt of Tartar, three drams; Native Cinabar,
or the Cinabar of Antimony, half an ounce.
make

make it into a ball, with a sufficient quantity of Syrup of Roses or Marsh-Mallows; adding 20 or 30 drops of Chymical Oil of Aniseeds; and make it into a ball, rolling it in Liquorice Powder, to be given with the usual precautions.

The purge may be made stronger or weaker by adding or diminishing the Jallap. Let this be repeated two or three times, and the Horse will probably recover without a relapse. Powder of Antimony or its preparations, as the Liver, or *Crocus Metallorum*, or its Cinabar, or the Native Cinabar mixed with equal parts of Gum Guaiacum, may be also given in ounce doses, for three or four weeks, to mend his Blood and take off its sizeness; and exercise, which ought not to be omitted, as soon as the Horse is able to bear it.

When a Horse drops down suddenly with hard riding, or violent driving; this is a case that in many respects resembles an Apoplexy, and all the organs of the Head are affected as in an Apoplexy; but as this proceeds only from the extraordinary rarefaction of the Blood, and its rapid motion, whereby the small vessels of the Brain, Heart, and Lungs, are extremely distended, so as to cause an universal pressure on the origins of the Nerves, that rise from the *Cerebellum*, and *Medulla Oblongata*; the Horse by this means loses all sense and motion, and generally falls suddenly, especially upon any sudden stop, because when the bodily motion ceases, the circulation of the Blood in the Veins

is not accelerated in proportion to its influx from the Arteries, which soon produces a suffocation and a falling down, without sense or motion. Instances of this kind are not uncommon, especially in very hot weather, when the external heat adds greatly to the Blood's motion and rarefaction. But as we suppose, in this case, little or no fault in the Blood, but perhaps a *Plethora*, or weakness in the Vessels, the quickest and readiest remedy is bleeding plentifully; and unless the Horse die with the violence of the fall, which sometimes happens, or by bursting the small Vessels of the Brain or Lungs, or happens to have Polipuses in the Heart, or principal Veins, he will soon rise of himself, or without much help, and may be preserved from such accidents in time to come, with better usage. But when such sudden disorders proceed from defects in the Blood and Nerves, the Horse may be treated as in other disorders of the Head.

Of the LETHARGY, or SLEEPING EVIL.

SOMETIMES Horses are seized with Sleepiness in very great Colds, especially those Colds that have some degree of malignity in them; but this symptom generally wears off as the distemper abates. But a true Lethargy seldom happens, unless to Horses that are old, or growing old, and to such especially that have been work'd beyond their strength and keeping. I have known many Horses seiz'd with lethargick disorders after very hard labour, when there has

What
Horses
are the
most sub-
ject to Le-
thargies.

has not been sufficient time allowed for food and rest, by which nature has received such a shock, that some have dy'd, notwithstanding all manner of proper applications have been made to recover them. Others have recovered with much pains and labour, and some of those that have recovered, were not afterwards able to go through any very great fatigue,

When a Horse falls into a Lethargy, or grows lethargick, he generally rests his Head with his Mouth in the manger, and his Pole often reclined to one side, which denotes a very great weight, stupor, and insensibility. As there is seldom any great pain, or inward sickness, he will shew an inclination to eat, but for the most part falls asleep with his Hay, Bran, Oats, or whatever else is given him, in his Mouth, and seldom chews, but swallows it down, but when he is jogg'd and rous'd, and unless when his Head is kept moving, he presently drops into sleep again; and if a Horse continues any time in this state, he falls into an Atrophy, or universal decay, especially if his Lungs, Liver, or any other of his principal *Viscera* be faulty, or if he has received any hurt in his Head.

A Lethargy in a Horse may be cured, if he is not very old and past his vigor. It is always a good sign if a Horse has a tolerable appetite, and in some measure retains his Smell and Taste, so far as to eat up a mash with a good gust, and without dosing over it, tho' he eats but little hay, and at the same time drinks pretty freely without slabbering; and if he lyes

The signs of a Lethargy.

The good and bad signs distinguished.

down and rises up carefully, though it be but seldom. But if a lethargick Horse does not lye down, if he is altogether stupid and careless, and never takes notice of any thing that comes near him; if he dungs and itales seldom, and even while he sleeps and doses, it is always a bad sign. If he runs at the Nose a thick white matter, it may relieve him; but if a viscid gleet that sticks to his Nostrils like glue, and if this increases, and turns to a profuse running of ropy, reddish or greenish matter, with an increase of his Lethargy, it is an infallible sign of a great decay of nature; and, as the name of this distemper imports, will prove deadly.

The Cure. As to the Cure, if the Horse be young, and has fallen into this distemper, either upon catching cold in some damp place, or has suffered from any hard usage, there may be great hopes of his recovery, because the disease in this case is in some measure symptomatical, and the right way is to begin with bleeding, but not in too great quantity, for lethargick Horses are seldom able to bear the loss of Blood, unless they be young and lusty. After bleeding give the following drink, which consists both of pectorals and cephalicks; for in some lethargick disorders, the Lungs are much affected, to which regard must be had in all the applications that are made.

Take Pennyroyal, Coltsfoot, and Chamomile
Flowers of each a handful; Rue and Hyssop
of each half a handful; Liquorice Root
sliced

sliced an ounce; infuse in two quarts of boiling Water, in a deep pan close covered, and when it has stood to be cold, pour it off into another vessel.

At the same time make the following Tincture.

Take Assa Fœtida, and the best Russia Castor, of each half an ounce; Saffron one dram; cut the Assa Fœtida and Castor into bits, and shred the Saffron, then tie them in a Rag, and let them steep all night in a pint of strong Mountain Wine, or in the same quantity of Spirit of Wine and Water, about three parts Water to one of the Spirits.

In the morning give a pint of the first infusion, with a quarter of a pint of this tincture. The same quantity in the afternoon, and so the days following, squeezing the rag with the Castor and Assa Fœtida, in each dose, leaving it always to soak in the tincture, till there is occasion to use it again, and that no taste or colour remains in it. The first three or four days let the Horse have Glysters, for in all stupifying distempers, Horses are apt to be costive. Emollient Glysters are the best, made of fat Broth, or a few Mallows, and Marsh-Mallows, boil'd in Water and Milk, which is better, with an ounce of sweet Fennel Seeds, adding half a pint of Linseed Oil, and the same quantity of common Treacle, to three pints or two quarts of the Decoction.

After these things have been comply'd with, and that the sleepiness wears off, and the Horse begins to move with spirit and vigor, give him one of the following balls every morning fasting, for a fortnight or three weeks.

Take Cinabar of Antimony, or Native Cinabar and Assa Foetida, of each half an ounce; powder of Castor, two drams; beat this mass into a ball with a sufficient quantity of Oil of Amber.

After the use of these things, that the Horse comes to feed heartily, two or three mild purges may be proper, just such as will thoroughly open his Body, and help to attenuate his Blood, as the following

Take Diapente half an ounce; Succotrine Aloes, one ounce; Cinabar of Antimony, and Salt of Tartar, of each two drams; make it into a ball with Syrup of Damask Roses, adding thirty drops of chymical Oil of Aniseeds, or a spoonful of Oil of Amber.

This may be given with the usual precautions. It will work partly by Dung and partly by Urine, &c. and with little or no griping, and render the cure more perfect.

It is usual in lethargick distempers, and all other disorders of the Head, to open the Skin of the Forehead, and to put a piece of some bulbous root into the orifice, and to cut several other issues in the Neck, the Breast, the Belly, and the Thighs, but these are often hurtful in Lethargies, especially when the distemper

is attended with decay and weakness; and I am the more convinced of this, because I have several times cured Lethargies in Horses that were not very old, without any rowels or other issues, by the method above prescribed, and instead of large evacuations, or allowing any thing to lessen the quantity of the Blood, have indulged them in pretty liberal feeding, divided in small portions, and exhibited at proper intervals.

Of the EPILEPSY.

THE Epilepsy is that distemper which in the human Body goes more peculiarly ^{The Epilepsy describ'd.} under the name of Convulsions. It sometimes seizes periodically, but often at uncertain times, and for the most part suddenly, with little or no previous symptoms, tho' in Man there is generally preceding the fit, excessive pain in the Head, Drowsiness, Stupidity, Loss of memory, &c. which cannot be so clearly distinguished in the brute creatures.

The common people call this distemper the Falling-sickness, or Falling-evil, when it seizes suddenly and universally, that the person falls down in the fit, but is called a particular convulsion, when a part or member of the Body only is affected. But it ought to be considered, that particular convulsions do not always proceed originally from the Head, but from pain and weakness in some member, by which the muscular Fibres are either contracted or become immoveable.

When

The
Causes
from
whence
Epileptick
Disorders
proceed,
especially
in Horses.

When the Convulsion is universal, it generally proceeds from all the same causes that produce Vertigoes, Apoplexies, and Lethargies, to all which it has a near affinity; and in Horses I am apt to think epileptick disorders are often owing to blows on the Head, or hard straining, especially when the Horse has not been hardened and prepared for labour, either of which may hurt the Brain, or its Membranes. And sometimes Epilepsies proceed from a *Pletora* or fulness of Blood, when it is gross and fizy, which however, is not so dangerous as the Convulsions that arise from the above recited causes. But when Convulsions happen to old Horses, they generally prove incurable, because nature being languid, gives but little assistance to the operation of medicines, or any other helps made use of for their recovery.

I have seen Horses seized with epileptick disorders, but were mistaken by the Farriers for the Gripes, and it is no wonder, that persons so meanly educated as they generally are, make such mistakes, in regard Horses are often convuls'd in the Gripes when the pain is violent, especially in that sort they call the twisting of the Guts, which is not what people generally imagine it to be, but an inflammation of the Guts, which sometimes ends in mortification, and then the Convulsions are only symptomatic; and though they are often violent, yet affect a Horse in a different manner from those of the epileptick kind.

In all kinds of Gripes, whether they proceed from disorders of the Guts, or retention of the
Urine,

Urine, a Horſe is often up and down, rolls and tumbles, and when he goes to lye down, generally makes ſeveral motions, with great ſeeming carefulneſs, which ſhews the ſenſe he has of his pain, and if he lyes ſtretched out at any time, it is generally but for a ſhort ſpace. But in the Epilepſy, the Horſe reels and ſtaggers, his Eyes fixed in his Head, has no ſenſe of what he is doing, ſtales and dungs inſenſibly, runs round, and falls ſuddenly, ſometimes immoveable with his Legs, ſtretched out as if he was dead, except only a very quick motion of his Heart and Lungs, which makes him work violently at his Flanks, ſometimes an involuntary motion, and ſhaking of his Limbs, which I have ſeen ſo violent in a Horſe, that he has beat and ſpurn'd his litter, and the pavement along with it. And I have known Horſes continue in this manner agitated, and ſometimes motionleſs, for the ſpace of three hours and upwards, when every body has looked upon them to be dying, and have been ſtrangely ſurprized at their recovery. At the going off of the fit the Horſe generally foams at his Mouth, and the foam white and dry, like that which comes from a healthful Horſe when he champs upon his bit.

Two very extraordinary caſes of this kind happened to me ſome years ago. One of them was in the Guards, the other in the Horſe Grenadiers. The firſt, juſt as he was mounted to go into the park for exerciſe, all of a ſudden reared up, and fell backwards upon his rider, whom he bruized miſerably, by his great weight and

How epileptic Disorders are diſtinguiſhed from the Grips in Horſes.

Two very extraordinary caſes of epileptic Horſes.

and the deadness of his fall. The Horse lay a considerable time, and all the while beat the pavement so incessantly, that it was dangerous for any one to come near him, otherwise than to thrust some litter under him with the handle of a fork. His Eyes were set in his Head and drawn upwards, and foamed at his Mouth, heaving and breathing very hard all the time. He recovered this fit without any other apparent disorder than a stiffness and weariness with the violent agitation he was in during the paroxysm, like what happens to some tired Horses after a long journey, and in a few days he seemed to be perfectly well and freed from all disorder; but in about a month afterwards he relapsed, and fell into a more violent and lasting fit in the stable, while he was eating a feed of oats: he lay in this fit many hours, for the most part motionless, with his Limbs stretched out and foaming at his Mouth; but at last, when upon the decline of the fit, he was given over for dead, he all of a sudden gathered up his Legs, raised his Head, as if he had only been asleep, and after looking about him a little while got up without any great difficulty, and in a few days, with the help of some Cephalick medicines, he recovered his appetite and the perfect use of his Limbs.

The Grenadier Horse was sent from guard, and being got home with much difficulty after bleeding, fell down before he could be got into his stall, and lay across the stable on a bed of litter many hours before the fit left him.

The

The method made use of for the recovery of The Cure. both these Horses was as follows. First of all they were bled pretty plentifully, though, if either of them had been low in flesh, or had come off any hard continued duty, or had been very old, I should have been somewhat sparing of their Blood. As it was impossible to administer any thing to them during the paroxysm or fit, I only took care to have them kept in a right posture, that they might neither hurt themselves nor those that looked after them. When the fit was over, the following ball was administered with a proper drink to wash it down, *viz.*

Assa Fœtida, half an ounce; *Russia Castor* pounded, two drams; *Venice Turpentine*, the same quantity; *Diapente*, an ounce; made into a ball with Honey and Oil of Amber.

The Drink was made thus, *viz.*

Penny Royal and *Mistletoe*, of each a large handful, *Valerian Root*, an ounce; *Liquorice*, half an ounce; *Saffron*, two drams; infused in a quart of boiling Water, and standing about two hours on the ingredients, it was poured off and administered after the ball.

This was repeated sometimes once, sometimes twice a day, at first, and afterwards once in two or three days. The Grenadier Horse was perfectly well in less than a week, and had no return. The other continued to take balls longer, with this alteration, *viz.*

Cinabar

Cinabar of Antimony, six drams; Asia Fortida, half an ounce; Anstolochia, Myrrh and Bay-berries, of each two drams; made into a ball with common Treacle, a sufficient quantity, and about a spoonful of rectify'd Oil of Amber.

Instead of the Drenches a large handful of Mistletoe boiled in three pints of spring water, was mixed in a pail with his common drink, which he drank without any reluctance, the Mistletoe having little or no taste or smell: and as to its virtue in convulsive cases the learned reader may consult *Riverius*, Sir *John Colbatch*, and many others. This was continued about three weeks mixed with the Horse's water, after the Cephalick balls and other Medicines were left off, and in the mean while were given laxative Purges and Glysters, at proper intervals, to keep his body open and prevent a relapse. The Glysters may be made with Chamomile Flowers and Mistletoe, with Oil and Treacle added to the decoction. The Purges are made of the same decoction, by dissolving four ounces of Lenitive Electuary, and the same quantity of *Cremor Tartari*, or *Sal Mirabile*.

Another
extraordi-
nary case.

Another Grenadier Horse was soon after seized with Convulsions that were not so violent as either of the two already recited, but of a more complicated kind and more obstinate. The Convulsions pulled his Eyes continually upwards, that nothing could be seen but the whites, sometimes for near two hours, the paroxysm or fit usually lasting so long in the beginning. When the fit was over, the Horse would

would eat scalded bran and hay, what was sufficient to sustain him, and drank gruel plentifully. He reel'd and staggered very much, but never fell down. He was treated in the same manner as the others, and in his drinks *Assa Foetida* and *Castor* tied up in a rag, lay always in the infusion, and was squeezed in every draught. At first his drinks were repeated twice a day with balls, and afterwards once a day, for some time, and once every other day, or seldomer, as the distemper declined. Two men were employed continually in rubbing his Head and Neck, Cheeks and Temples, to keep his Mouth free, which was often locked up for several minutes, and would probably have continued so, if this method had not been made use of, to prevent his being jaw-set. Other parts of his Body were also rubbed, where any cramp or convulsive symptom appeared, which, with the help of his medicines, brought him into a continual breathing sweat, which lasted near three weeks. His cloaths were often changed and dried, and the effect of the *Castor* was particularly remarkable in promoting the *Diaphoresis*; for his sweaty cloaths, and the whole stable where he stood, were strongly perfumed with it. This Horse was perfectly cured, and has continued well and free from any relapse for many years.

About twelve years ago I was employed to another very fine Horse of the coach-breed, much in the same condition with this last, who, after his recovery from the Fever and Convulsions, continued blind upwards of three months,

and yet afterwards came gradually to his perfect sight, and had no relapse.

Horses not
so apt to
relapse in
convul-
sive Dis-
orders as
Men.

It may be worth while to observe that Horses and other brute creatures often get clear of the very worst kind of nervous distempers without any return, unless they be old, and then the symptoms never totally leave them; or if any great damage happens to the Brain, or other parts contained within the Skull, the case is then always desperate. But when they do not proceed from these or other such dangerous causes, but a faulty Blood, they often stand a better chance than men in the like circumstances, who are apt to have their epileptick fits return upon every fright or surprise, and perhaps from no other cause but their own fears and apprehensions, which so far affect the nervous system as often to bring on the very evils they dread; so that the distemper at length grows habitual, and in some almost periodical; whereas those creatures that are incapable of any degree of reflection, are no ways liable to such impressions, but forget all the evils they suffer of pain and sickness, without the least apprehension of a return, whereby their bodies recover sufficient strength to resist fresh assaults.

Of the PALSY, and Paralytick Disorders.

THE Palsy has an affinity with the foregoing Disorders, so far as the Nerves are affected in both, but with this difference, that in cases meerly convulsive, the Muscles are strongly contracted or shook by involuntary motions,

tions, proceeding from the irregular fallies of the animal spirits, whereas in paralytick disorders the Nerves seem to be clog'd, and the course of the spirits totally or in part obstructed; for in a Palsy the use of some part of the body, or sometimes, when it derives its origin from the Head, the use of one whole side is taken away, the parts are flaccid and relaxed, without any capacity of motion, and sometimes without sense or feeling, in which respect a Palsy affects the Body in a manner quite different from an Epilepsy. When the Palsy seizes one whole side, it is called by the writers in physick *Hemiplegia*, and when single parts or members only are affected, it is called *Paralysis particularis*.

Difference
between
the Palsy
and other
disorders
of the
Head.

The signs are, losing the use of some particular member, totally or in part, particularly the Limbs, sometimes one, sometimes more, especially the hind Legs. This kind is pretty usual; and tremors or shakings sometimes attend; but of the many Horses I have had under my care, I do not remember above two that were seized with the *Hemiplegia*, viz. that kind of Palsy that seizes all the Muscles on one side. But in the year 1743, many Horses were seized with a nervous distemper, that very much resembled an *Hemiplegia*, which chiefly affected one side; and even pulled their faces somewhat awry, being of a mixed kind, partly paralytick, and partly convulsive, of which further notice will be taken when I come to treat of Epidemick diseases.

The signs

Prognosticks,

When the Palsy seizes one Limb only, it is not often dangerous, and is less so when there is a continual shaking and an involuntary motion; but when it seizes both Limbs behind, the case is then very troublesome, and the Horse is not able to stand, but when he is supported by some means or other, until he has recovered the use of his Limbs, at least in some degree. In an *Hemiplegia* the use of one side is totally taken away, and the Horse falls suddenly; and tho' at first he will strive very much to rise, yet it is neither in his own power, nor in the power of Man to raise him up so as to stand; for tho' a Horse can move his Limbs on one side, yet he has not the least power on the other, and his Limbs are so flaccid and relaxed on the paralytick side, that when they fall they double under him; and this case, in a Horse, is so desperate, that there can scarce be any possible way found out to recover him.

Horses that lie out late at grass upon cold clay grounds, often come up with numbness in their Limbs, which they in some degree lose the use of for a season; but this is not a true species of a Palsy, unless when the Head is also affected, but rather of a Rheumatism. But a true Palsy generally takes its rise from a very sily and sluggish Blood, proceeding, for the most part, from high feeding, and want of sufficient exercise, from bad provender, blasts, and bad air; sometimes from hard working and want of good keeping, and frequently from old age, which is the most dangerous. When
parali-

paralittick disorders happen to old Horses that have been delicately kept, or on the contrary have been in bad keeping and hard worked ; if the distemper seizes one whole side, it is scarce worth while to attempt a cure. If the Palsy seizes only particular parts in old Horses, the cure will be difficult, and for the most part only palliative ; for there will always remain somewhat of numbness and insensibility in those parts that will render such Horses of little use. But paralittick symptoms in young Horses proceeding from cold blasts, bad provender, or any other cause, whereby the Blood may be contaminated, are often removed without much difficulty.

The cause
of paralittick disorders.

In curing the Palsy the same internals that are made use of in apoplectick and convulsive disorders, are here also proper, with bleeding, rowels, and other outward helps, such as warm stimulating embrocations. One of the best of this kind, and what I have frequently applied with good success in paralittick numbnesses, is as follows.

The Cure.

Take Oil of Turpentine, four ounces ; Nerve Ointment and Oil of Bays, of each two ounces ; Camphor rubbed fine in a mortar, one ounce ; rectify'd Oil of Amber, three ounces ; incorporate these together into a liniment ; to this may be added an ounce of Tincture of Cantharides.

Proper external applications.

Let the affected part be first well rubbed with a woollen cloth, that the liniment may penetrate with the more ease ; then take a sufficient

quantity thereof, and anoint or embrocate the part thoroughly, working it well in with a warm hand, and as often as the liniment begins to dry in, renew it again. This method should be continued till the numbness goes off, and the Horse shews that he has recovered the use of his Limbs. If the deadness and lameness be chiefly in the hind parts, in that case the liniments may be also rubbed into the spines of the Back and Loins, from whence the principal Nerves that go to the Limbs derive their origins; but in this case the Tincture of Cantharides should be omitted. Rubbing the parts often is of great use in all such cases, and therefore ought never to be neglected. If the Head be affected on one side, so as to draw the Horse's Mouth awry, the Fore-head, Temple, and Cheek on that side, ought also to be well rubbed and embrocated with the above liniment: and when this is the case, internals ought not to be laid aside; because we may suppose, with good reason, that the distemper has taken its rise from the Head. If a Vertigo happens, or if the lameness be universally on one side, but not an universal deprivation of sense and motion, as in the *Hemiplegia* or dead Palsy; in the first, *viz.* in a Vertigo, all objects seem to turn round; so that a Horse, while any sense remains, with the least use of his Limbs, will naturally follow the object in his motions; in which case all those things that have been recommended for the cure of an Apoplexy, are also proper, with rowels and outward applications. In the latter, *viz.* when the lame-

lameness is altogether confined to one side, the Horse, by leaning on the sound side, will also turn round towards the lame side, having the use of his Limbs on the sound side to support him, but not so freely on the other; but as this may happen without a Vertigo, the best remedy here is mild Purging, and a liberal use of Embrocations. A mixture of mustard-seed, fresh ground, with camphorated spirits frequently rubbed into the diseased Limbs, will be of great use, *viz.* an ounce of the mustard seed to half a pint of the camphorated spirits, and towards the latter end of the cure Opodeldock may be used with good success, mixed also with camphorated spirits. If a Lethargy happens, which is not unusual in the distempers of the Head, few evacuations will be required; besides now and then a Glyster with rowels on the Neck and under the Jaws, and the richest cordials and cephalicks, are necessary in all lethargick symptoms, as Castor, Assa Fœtida, Salts of Hartshorn, Sal Armoniack, and all other volatiles; but this can only be done to Horses that are of some value.

I have omitted treating the Vertigo as a particular distemper of the Head, because it is a symptom that sometimes attends all other Cephalick disorders, and requires the same method of cure.

C H A P. II.

Of the Distempers that affect the Head, arising from parts at a distance from the Brain and origin of the Nerves.

HAVING treated of those maladies that are peculiar to the Head, which cause the Staggers and Convulsions in Horses, I shall now proceed to those that affect the Brain in a no less sensible manner, though they take their rise from distant and remote parts; and which I have observed to be more frequent among Horses than those that take their rise immediately from the Head, and therefore ought to be carefully distinguished by those who undertake the cure of Horses.

Every one must needs be sensible, that violent and excessive pain in any part of the Body will excite Convulsions, but especially when the pain is in those parts where the Nerves abound most, as the Stomach, the Guts, the Midriff, and tendinous parts of the Limbs; and therefore we find Horses often convulsed in the Gripes and Strangury, when the nervous parts of the Guts and Bladder are affected with violent pain and inflammation. Sometimes Horses become convulsed with wounds in the Feet, when the Tendons in those parts are pricked and bruised, or in any other part where the Tendons are wounded; but especially punctured wounds in the Joints with forks, or with sharp splinters, cause very great anguish and excessive pain,

pain, and sometimes with a disposition to a Gangrene and Mortification, which often excite Convulsions. These things are plain, and visible; and it is no less plain that inward impostumations, especially in the Stomach, Lungs, and Midriff, will produce Convulsions that are most dangerous and often prove deadly. And further, we may often observe Horses have convulsive disorders, from a plenitude and fulness of Blood, which however is sometimes easily removed, as also those that proceed from a plenitude of the Stomach, or when the Guts are crammed with dung and aliment, especially when the dung, by long continuance, is grown hard and dry. All these things will cause convulsive Disorders, with the Staggers; but I shall now proceed to treat of those things more particularly.

CONVULSIONS from the Stomach, and other principal Bowels.

OF this kind, is that deplorable distemper so well known, but little understood, which locks up the Jaws of a Horse so close, that it is almost impossible to force them open by any means whatever, either to receive food or physick.

Selleysell calls this malady the Stags Evil, or Palsy in the Jaws, though in most of its symptoms, it is directly contrary to a Palsy. With our *English* Farriers, it goes under the general name of Convulsions, and indeed it soon turns to an universal Cramp or Convulsion, that seizes

all the Muscles of the Body of a Horse. But the true nature and cause of this extraordinary Convulsion seems not as yet to have been rightly understood, either by our own Countrymen, or the Writers of foreign Nations. It almost always seizes suddenly, and without any previous symptoms, such as the want of appetite, and the other signs of sickness; for I have often known Horses clear their racks in the night, and in the morning drink their water, and eat their allowance of corn as usual, and in less than half an hour have had their Mouths close shut up, and their whole Bodies convuls'd.

Jaw-set
Horses.

In what
manner a
Horse ap-
pears in
this dis-
temper.

As soon as a Horse is seiz'd in this manner, his Head is rais'd with his Nose towards his rack, his Ears prick'd up, and his Tail cock'd, looking with an eagerness, as an hungry Horse when hay is put down to him, or like a high-spirited Horse when he is put upon his mettle; insomuch, that those who are strangers to such things, when they see a Horse stand in this manner, will scarce believe any thing of consequence ails him; and I have seen such persons greatly surpriz'd when they have been told of the danger; but they are soon convinc'd, when they see other symptoms come on apace, that his Neck grows stiff, cramp'd, and almost immoveable; and if a Horse in this condition lives a few days, several knots and ganglions will rise on the tendinous parts thereof, and all the Muscles both before and behind, will be so much pull'd and cramp'd, and so stretch'd, that he looks as if he was nail'd to the pavement,

ment, with his Legs stiff, wide, and straddling; his skin is drawn so tight on all parts of his Body, that it is almost impossible to move it, and if trial be made to make him walk, he is ready to fall at every step, unless he be carefully supported; his Eyes are so fixed, with the inaction of the Muscles, as gives him a deadness in his looks. He snorts and sneezes often, pants continually with shortness of breath; and this symptom increases continually till he drops down dead, which generally happens in a few days, unless some very sudden and effectual turn can be given to the distemper.

These are the usual signs of that fatal distemper, which here in *England*, passes more particularly under the name of Convulsions; and tho' it differs in many respects from the Epilepsy above described, both as to its symptoms and cause, yet it is the most universal in its effects of all other convulsive disorders.

Young Horses from four to six years old, are the most subject to it, and the large coach breed, and all kinds of draught Horses, more than saddle Horses. The most usual cause of this universal Cramp or Convulsion, is from Bots in the Stomach, which being bred there from the eggs, generally come to their maturity in the months of *April*, *May*, or *June*; this being the season wherein this distemper chiefly prevails among young Horses; and when it happens at any other time of the year, or to Horses above six years old, that have been in business, it is then for the most part owing to other causes, as Impostumations, or
The Causes of this fatal distemper, for the most parts from Vermin in the Stomach.
Ulcers

Ulcers in the Midriff, or some other of the principal *Viscera*, which I have seen; but these instances are not so frequent, as those from vermin in the Stomach, and even the latter are not so frequent some seasons as others, which I have also observed; and therefore they may probably be owing to unwholesome food, wherein the eggs of those animals have been deposited, but chiefly to high, foul feeding, for this sort of Convulsion is most usual among those Horses that have been kept up and pamper'd for sale, with little or no Exercise, which disposes their Blood to putrefaction, whenever they come to be heated in their work.

I shall not here take up the reader's time, with the different opinions and conjectures of physicians, concerning the conveyance of the eggs of insects into the Stomach, or into the streight Gut, where they are most usually found; but it is certain the Stomach, as well as the streight Gut, becomes a proper *Nidus* to bring them to life. They appear to be no other than large maggots, with sharp prickly feet on both sides of their Bellies. Those in the streight Gut are commonly of a yellowish colour, and are no ways dangerous; but in the Stomach they are generally of a larger size, and more inclined to the orange, but without any other specifick difference. The eggs from whence these Bots are produced, are dispersed in clusters all round the lower Orifice of the Stomach, where it is thickest, and where probably, the muscular action is most languid, that part being as it were constantly distended by the weight of the aliment.

aliment. They are laid under the inner Coat, or thin Membrane of the Stomach, which covers them all over, as the eggs of those vermin that blight the trees in the spring, are covered over with a fine filamentous Membrane; and as these destroy the young tender leaf, and curl it up into folds, so those, when they come to form and life, they burst through the inner Coat of the Stomach; with their Breech and Tail streight outwards, and their trunks fixed so into the muscular or fleshy Coat, that it sometimes requires a good pull to disengage them. From the Blood of this muscular Coat they draw their nourishment, which they suck like so many leeches, every one ulcerating and purring up the part where it fixes, like a honey comb. I have seen in the same Stomach, part of the eggs covered over with the inner Membrane, and those of various sizes, some no larger than a millet-seed, others about the size of peas, and some larger, stretching out the inner Coat, and just bursting through it, others in full life, and in thick clusters, sucking Blood from the muscular Coat. By this gradation, the symptoms suddenly increase, and often make such a quick havock in the Stomach, as renders the distemper incurable. From all which we may infer, that perhaps the Muscles of the Stomach are not endowed with so great a force, as *Bellini*, and many other modern Physicians, have imagined, but that something else may be required in digestion, besides the bare muscular action: But be that as it will, we may easily account for the convulsive symptoms that attend this malady,

malady, and their universality, from the distribution of the Nerves over the Coats of the Stomach, which appear to be more numerous there, than in any other of the *Viscera*, and have their derivations by communicating branches both from the Head, and from the Spines of the Back and Loins; and this is the reason of what we see from daily experience, that whatever offends the Stomach in any degree, always affects the Head and other parts of the Body. But these things do not often cause dangerous Convulsions in those creatures that have a capacity to vomit; but when Ulcers are thus ingendered in the Stomach of a Horse that has not this capacity, and all the powers and faculties thereof thereby destroyed, the case must then be very desperate, and the whole Body, and all its parts, must of consequence be convuls'd.

Sometimes Ulcers or Impostumes in the Midriff and other principal Bowels, produce the same effect.

The like symptoms are also in some measure produced from ulcerations in the Diaphragma or Midriff, by the vast distribution of twigs of Nerves, all over the tendinous parts thereof, having their derivations and communications in the same manner with those of the Stomach. Besides, the Midriff being placed near the center of the whole Body, and its muscular action being in concert with the Muscles of the Breast, Shoulders, Lower Belly, and Loins, it is no wonder if Impostumations there, or in any other part near it, should also bring on universal Convulsions.

How to distinguish the one from the other.

But it is of use, in the cure of these maladies, to distinguish between an universal Convulsion that takes its rise from vermin in the Stomach, and

and when it is produced by a distemperature of the Midriff, or any other of the principal Viscera, which will also teach us how to make a right Prognostick in these and all such extraordinary cases.

When the distemper arises from Bots in the Stomach, it seizes suddenly and without any previous notice. The Convulsions in this case often seize a Horse at once, and the Horse appears with all the symptoms above described; and when his Mouth is shut so close, as even sometimes happens at the very first onset of the distemper, so as it cannot by any means be opened, the case is then exceeding dangerous, and the cure almost impracticable; but when the Mouth is so far free from the Convulsions, that a medicine may be administered, tho' it be with some difficulty, and that he can make a shift to lick up a little bran, and swallow a little white water or gruel, there may be some hopes of a recovery; especially if the Neck is not excessively stiff and cramped, which is always a bad sign. But if a Horse is able to turn his Head pretty freely, and can move his Eyes backwards and forwards, or side-ways; these may be reckoned promising signs, and the Horse in such circumstances, may be cured with proper care and right applications.

The good
and bad
Prognos-
ticks.

But when this sort of universal Cramp or Convulsion proceeds from a distemperature of the Midriff, or any other of the principal Viscera, there are always some previous symptoms that go before, by which it may be distinguished from the Convulsions that proceed from Bots and vermin. When this is the case, a
Horse

Horse first of all falls off his Stomach, grows gradually weak, feeble, and dispirited in his work, turns short-breathed with the least exercise. These are the signs which I have observed to go before this distemper, tho' they are also common in many other inward disorders, and are generally owing to some mismanagement, as the working Horses beyond their strength, especially when they are growing old by working, on a starving low diet, and from want of gradual cooling, and not allowing proper intervals of rest, and such like neglects. And tho' the distemper advances more slowly in this case than in the other that proceeds from vermin, yet it is no less dangerous, because the true cause is seldom known till it be too late to provide a remedy; whereas a Horse that turns convulsed by vermin in his Stomach, has a better chance, not only because it generally happens to young Horses that have been neither broke by age nor labour, nor do we suppose any previous indisposition in the Blood more than what is usual to young Horses from foul feeding, and want of sufficient Exercise.

In order to the Cure, it will be necessary to observe carefully these distinctions; and if a young Horse that has been but lately in the dealer's hands, happens to be seized suddenly, and if this falls out in the spring and beginning of the summer, without any previous symptoms or foretokens of sickness, we may reasonably conclude the distemper to be owing to Bots in the Stomach, and to no other cause. In which case no time is to be lost, but before

The Cure,
when it
proceeds
from Bots
in the
Stomach.

Chap. 2. CONVULSIONS.

287

his Mouth is quite shut up, the following ball may be given.

Take Mercurius Dulcis and the powder of Diapente, of each half an ounce ; make it into a ball, with a sufficient quantity of Conserve of Roses, and roll it in Liquorice Powder or Flour, and wash it down with a hornful or two of warm Water.

I have seen very extraordinary effects from this and the other preparations of Mercury in such cases. When this ball has been administered make the following infusion.

Take Pennyroyal and Rue, of each two large handfulls ; Chamomile Flowers, one handfull ; Asa Foetida and Castor, of each half an ounce ; Saffron and Liquorice Root, sliced, of each two drams.

Let these be infused in four quarts of boiling water, and when the infusion has stood till almost-cold, give three or four hornfuls, and repeat the dose three or four times a day, letting the ingredients continue always in infusion, and the Castor and Asa Foetida tied in a rag, which may be squeezed into the drench-horn, as has been directed in the other Cephalick disorders. For tho' we suppose the Convulsions in this case to be only from the ulceration of the Stomach, yet the same method ought to be followed as if they proceeded immediately from the Head and origins of the Nerves, both with respect to internals and externals; and therefore I would recommend what has been above directed for outward application in paralytick cases, or the

the following, which I have always found to be of great use in all cramps and convulsive contractions of the Muscles, *viz.*

Nerve Ointment, or the Ungentum Martratum, of either of these four ounces ; Ointment of Marsh-Mallows, six ounces ; Mustard-seed ground, and Flanders Oil of Bays, of each two ounces ; Oil of Amber, two ounces ; with a sufficient quantity of camphorated Spirits of Wine, to make it into a thin Liniment.

This must be rubbed into the Cheeks, Temples, the Neck, Shoulders, Spines of the Back and Loins, and wherever there is the greatest stiffness. Mustard Seed alone, fresh ground, worked well into the affected parts with camphorated Spirits, may also be used successfully to Horses of small value, for outward application, and internally the following cheap drink, which may be given two or three hornfuls once in four hours.

Take Rue, Pennyroyal, and Tobacco, of each a handful ; Asa Fœtida, an ounce ; boil them in a quart of Forge Water, and let the decoction stand constantly on the ingredients.

But sometimes Horse's Mouths are locked up so close in this distemper, that scarce any thing can be administered that way ; and if this symptom is not speedily removed, the case soon proves deadly. I have had many convulsed Horses under my care, some of which have died, others have been perfectly cured ; tho', whenever Horses are seized in this manner, the practitioners

practitioners in Farriery, generally give them up for dead; and their method is to try if they can get any thing down, and when they find that impracticable, they administer Glysters, and fill them full of rowels and other issues; though, by reason of the contraction and closeness of the Skin, scarce any of them come to a kindly digestion. I shall therefore relate some few instances of cures that were made by my direction, which, if rightly understood; may be of use to those who practise Farriery, and will shew how much apparatus is necessary in removing this desperate distemper, which cannot possibly be effected without some expence and very great labour.

About twelve years ago a young Troop-Horse was seized with this sort of Convulsion, but not so severely as in some other cases that will be related. It began with the Staggers, and sudden fits of Starting, which made him rear up, and often get his Fore-feet into the manger. His sudden fits made me apprehend his distemper to proceed from vermin in his Stomach, which is a constant symptom in all the Convulsions that proceed from this cause; but as his Mouth was not so constantly and closely shut as in many the like cases where I have been concerned, we could therefore at times make a shift to convey some medicines into him, and though he could not at first eat his common food, yet he could, by allowing him time, sip a pretty good quantity of water-gruel, which sustained him till the medicines took effect. He was cured with mercurials and

the other things above directed, and afterwards by the help of mild Aloetick Purges.

Much about the same time a young Drum-Horse was also seized within a few days after he came out of the dealer's hands. He was so far relieved in a fortnight's time, that he could make a shift to eat some scalded bran, with a small quantity of hay, though very leisurely, which was given in handfuls, and frequently by the hand day and night, to keep his Jaws moving. Two men were also employed continually to rub his Head, Neck, and Cheeks, and wherever else the stiffness appeared most, and these were relieved by others, for a Horse in this condition never lies down till the Convulsions of the Muscles are in a great measure removed; and therefore if the rubbing had been omitted it would have been difficult to save him. And I have always observed, if a convulsed Horse stands two hours without rubbing, the stiffness and insensibility increases, and certainly for want of this management many Horses have been lost, that otherwise might have been saved. An ounce of *Assa Fœtida* was also tied up in a strong coarse linen rag, and put between his Grinders, to champ on. This was rolled in the cloth, and tied at both ends with two pieces of packthread, which were fastened to his collar, and one side was always untied when any thing was to be given him either of food or physick. This Horse recovered perfectly in about two months time, and has been since abroad in *Germany* and the *Netherlands*, where he has undergone a great deal of fatigue, and returned home with the troop, in perfect health.

I could add several instances of this kind; which for brevity's sake I am obliged to pass over; and therefore shall only take notice of one more, which for its singularity deserves very well to be regarded, and that was the case of a young Horse in the other troop of grenadiers. He had been but a few days taken into the troop when he was all of a sudden seized with this kind of Convulsion, which was first discovered as he was leading out to water at the afternoon's watering-time. I happened then to be present, and perceived him come reeling along, with his Nose turned out, his Eyes fixed and immoveable, with all the other signs that usually attend this fatal distemper, and when he came to the trough could not reach the water, because of the cramp and stiffness of his Neck, and when it was held to him in a pail could not drink, though he shewed an eagerness for it, his Mouth being shut up so close, that it was scarce possible to put a knife between his Teeth. This was sudden, as all these maladies generally are, for he had eat his common allowance just before he was seized, except a small matter of hay, which he had partly pulled out of the rack into the manger.

We found it impracticable to administer any kind of medicine, till by rubbing his Cheeks, Jaws, and Temples, and his whole Neck, for a considerable time, we made a shift, with great difficulty, to thrust down part of a calomel ball on the end of a small stick, and then to pour into his Nostrils a very small portion of a strong cephalick drink, thinking by that means

to convey the ball downwards into his Stomach, which however had but little effect any further than this, that he had not such sudden fits and agitations as I have seen in others in the like circumstances, but continued more quiet; neither did his Fever increase, as usually happens when the distemper is gaining ground; but all this while his Mouth continued so much shut, that he could neither eat nor drink for three weeks, only by continually rubbing his Jaws and Neck, he would sometimes make a shift to suck about a handful of scalded bran, or sometimes a little oatmeal moistened with warm water, but in so small a quantity, that it is possible he might have starved if other methods had not been taken to keep him alive.

I have often observed, that the forcing the Jaws open by violent means, puts a Horse into such agonies, that it rather increases than abates the symptoms; and therefore I contrived to give him both his food and physick by the fundament, through a pipe fourteen inches long, by which he seemed to receive great benefit, for we could perceive the symptoms abate daily. His Flanks grew more quiet, he stood more still and free from sudden fits and startings; all which symptoms are usual in the continuance and increase of this distemper. The Glysters were contrived in the following manner.

Rue, Pennyroyal, and Chamomile Flowers, of each a handful; Savin and Box, of each half a handful; Garlick, an ounce; Castor and Asia Foetida, of each half an ounce.

In

In making this glyster the herbs are to be boiled first in two quarts of water in a covered vessel, the space of ten or fifteen minutes, with the Castor and Asa Foetida cut in small pieces and tied in a rag, not only to save the Castor from waste, but that it may be squeezed into several glysters. Then the garlick to be added and continued close covered over the fire the space of ten minutes longer, after this the liquor to be poured off into a pan or any other convenient vessel; then add of Linseed oil, or treacle, of each four ounces, and last of all half an ounce of unrectified oil of amber, the treacle and the oils are to be mixed with the decoction when it is put into the bag.

This glyster was repeated once a day for a fortnight, and by way of diet, was given every day three or four quarts of milk boiled with oatmeal and water, a bag with a long pipe being left in the stable for that purpose. He retained every thing that was administered that way, which he generally sucked up of himself without force. This perhaps was in some measure owing to the nature of this universal Convulsion, which causes such irregular motions in the Midriff and Muscles of Respiration, as in some measure inverts the natural motions of the Guts; and for the same reason, Horses in this condition seldom dung, but stale often, and when they dung, it drops from them in a manner insensibly, and often no more than one or two balls at a time. And therefore, as this Horse could receive little or no sustenance by the Mouth, I was determined to make

trial how far he might receive nourishment by way of injection backwards, whether a thin diluted food thrown into the Streight Gut, and from thence over into the small Guts, by the help of a long pipe, might not find a passage into the Blood through the Lacteals, especially there being experiments of this kind made on the human Body, both in administering food and physick, particularly in giving the bark by way of glyster, in Agues and Intermitting Fevers, which has been found successful, where the Stomach was not able to bear its austerity. It was upon this footing that I treated him in the manner I have described, which I imagined was not altogether without its effect; for he scarce eat in three weeks what was sufficient to sustain him one day; so that it was impossible for him to have lived had he not been supported by what was thrown into his Bowels; and tho' by this means he lost his Flesh very sensibly, yet he still retained a good deal of vigor and vivacity. He had two men constantly to look after him, and these relieved by others, who had orders to rub his whole Body often, which greatly helped to relax his Skin, and remove the crampiness of his Muscles; and tho' he had not for the first fortnight recovered the use of his Jaws, yet we observed him daily to move with less stiffness, and often to lick in his manger as if he craved after food. He also breathed with less difficulty, and had several other good signs. This encouraged me to try another experiment with Opium, from the known quality of that drug, in relaxing the
Animal

Animal Fibres, which I therefore thought might be of service to remove the contractions of the Muscles about his Mouth and Jaws, which all this while continued in some measure obstinate, and without some powerful relief might prove fatal; even though the original cause was in a great measure taken away. Therefore I caused half an ounce of crude Opium to be dissolved in one of his glysters, which was followed with these circumstances, that the Horse soon lay down; he began to point his ears backwards and forwards, and could move his Neck pretty freely, and his Mouth was so far at liberty, that he took his Drinks with little or no difficulty, and could eat hay and bran sufficient to sustain him. He likewise moved his whole body so readily, that we could walk him an hour every day: And that I might follow up what I imagined had been successfully begun by the opiate glyster, I ordered him some days after an ounce of the common *Matthews's* pill, which contains about two drams of Opium, and the same quantity of *Assa Foetida* made into a ball, which was given at his Mouth, and washed down with a hornful of gruel, which was done with great ease, his Mouth being grown pretty pliable. This ball being once more repeated, he recovered daily, being continued for some time in the use of the Drinks, which were now administered only twice a week with good rubbing, and as soon as he began to recover his Flesh, was gently purged. By this method he was perfectly cured, without any other ill effect than a blemish on one Eye, caused by the violence

lence and strong contraction of the Muscles during the Convulsions, which indeed were as bad as any I ever saw, even where they proved the most fatal.

Thus, I judged it might be proper to relate the history of this cure in its whole process, including all the principal circumstances thereof, wherein it may be observed that I have scarcely in any respect followed the common method of repeated bleedings, purging glysters, and rowels; all which might be proper, if the Convulsions proceeded either originally from the Head, or from a viscid fizy Blood, or from wounds or contusions, &c. But as I have discovered this kind of Convulsion or universal Cramp in young Horses, usually to take its rise from the causes above assigned, to wit, from vermin in their Stomachs, I have therefore in such cases bled, but seldom. I made use of no purging glysters, because the irritation made in the Bowels, and a discharge from thence can be of little or no use, but hurtful, where a powerful revulsion is not absolutely necessary, especially where a Horse cannot feed. And as for rowels, I have seen the farriers put a rowel on each side of the Neck, one in the Belly, one on the Forehead, and one on each Thigh; but the ill success they meet with has made them not so fond of that kind of practice of late, as formerly, for the Skin is drawn so tight in all parts, that the rowels seldom come to a kindly digestion, but are apt to mortify, and thereby encrease the Horse's misery; and therefore I have seldom ordered rowelling in this case, but under
the

the Jaws, or in the Breast, there being no room for rowels any where else.

What effect opiates may have in destroying vermin, I shall not offer positively to determine, whether by rarifying the Blood to a great degree, and consequently augmenting its motion, or by any other quality may cause their eggs to come loose from their adhesions, as we see tobacco-water destroy the eggs of vermin on the leaves of plants. In these things we have no way to come at any certainty, without experiments, though it is likely by its relaxing quality it may be useful in such an universal cramp, especially when the management of it happens to fall in good hands. But all are agreed, that Mercury and several of its preparations are efficacious in destroying of vermin, both by its weight and subtilty disposing it to pass thro' the minutest capillaries, and also by its globular figure; which no kind of change by whatever *Menstruum*, or other management it is dissolved, can alter; and therefore I have given it with good success in various shapes, to destroy vermin, sometimes crude, sometimes the calomel, or *Mercurius Dulcis*, and in some very urgent cases of this kind, I have exhibited a dram, sometimes two drams of turbith mineral; but whoever ventures upon these and such-like preparations, ought both to understand the nature of the medicine, and the constitution to which it is administered, concerning which see farther in the Farcy. I could relate many more instances of cures of this kind which I have made since, and particularly

larly three very lately, which were all managed in the same manner, by giving their food and physick by way of glyster, and as they differed only in some few circumstances from those already related, I shall forbear to go into the particulars of them, but proceed to those Convulsions which are owing to other causes.

The Cure,
when the
distemper
proceeds
from the
Midriff.

When this distemper does not proceed from vermin, as sometimes happens to old Horses that have been strain'd in working, or after some very bad surfeit, then the mercurial preparations will be in a great measure unnecessary or perhaps hurtful, and therefore recourse must be had to the cephalick drinks above inserted, to bleeding and moderate purging, and proper alteratives. Rubbing and the use of liniments externally, is here also of great service, and frequent glysters of the emollient kind. In this case a Horse must be treated with great gentleness, because there is often some inward decay, which will admit of no rough dealing. I have seen in Horses that have dy'd of this distemper, the Midriff ulcerated, which being extremely full of branches and twigs from the Phrenick Nerves, that communicate with all the other Nerves of the Body, and being itself a kind of Centre Muscle, that acts in concert both with the Muscles of the Breast and Lower Belly, makes it therefore the more easy to account for this universal cramp, which when it proceeds from hence, may be looked upon for the most part as the harbinger of death, unless the symptoms are so moderate, that there is room for administering medicines, and that the Horse

Horse is able to take a sufficient quantity of food to sustain him; and if the symptoms do not increase but abate, it is possible for him to recover, tho', if the Horse be old, or of a very weak constitution, he will scarce be worth the expence and pains. Some I have known recover and do very well, that have had all the symptoms of a diseased Midriff; and in this case, besides the use of the cephalick medicines, rowels, with good feeding, are of great use, as soon as the Horse's Skin is loosened enough to bear them.

I have taken notice, that this universal Convulsion may also take its rise from a faulty Blood, in which case it may be removed without much difficulty, unless the Horse be very old, as in the instance I am going to relate.

A Horse in the third Troop of Guards, was seized with this universal Cramp or Convulsion, which began in his hind parts, quite different from that which proceeds from vermin, or a faulty Midriff, both which seize suddenly. At first nothing appeared but a cramp in his Hind Legs, to which some Horses are often subject, and generally come well with moving till they are warm, and therefore the Groom that looked after him, trotted him twice a day in the riding-house, after which it went off for a time, but in a few days he was all over convulsed, with his Jaws set, yet not so close but we could with some difficulty give him both balls and drinks. The Horse was about eight years old, and had been near three years in the troop. His Blood was exceeding poor and viscid, re-

A universal
Cramp
which began in the
hind Legs
of a Horse.

tembling paste, and the loss of it gave him no relief. I concluded from hence, and from other circumstances, that his distemper proceeded altogether from a depraved, weak, sily Blood, and not from vermin, for when the Convulsions happen to young Horses from vermin, their Blood is indeed sily, but at the same time rich and florid; but it was quite otherwise with this Horse; the Convulsions began in the Limbs, where the motion of the Blood and Juices is most languid, and from the consent that all the Muscles have one with another, ascended gradually like a fire that begins in the bottom of a house, and rising upwards, would soon consume the whole fabrick, unless speedily extinguished. This Horse was cured without much difficulty, tho' it was some time before he came to a perfect state of health. The medicines administer'd to him were the same that have been already inserted in the cure of Epilepsies, and other cephalick disorders, with the Cinabar balls, which were proper to attenuate and take off the siziness of his Blood. In such cases a small quantity of wine may also be indulged, with saffron, Virginia snakeweed, and Contrayerva roots to be mixed with the drinks, and in some cases a tincture of Steel, to warm and invigorate the Blood, viz.

The Method of his Cure.



Take Castor, and Assa Fœtida, of each half an ounce; Rue and Pennyroyal, of each a large handful; Filings of Iron ty'd up in a bag, half a pound; infuse these in two quarts of boiling Water, and keep the infusion

fusion dose covered by itself for use. Add take Virginia Snake-weed, Contrayerva, and Valerian, of each half an ounce; Saffron and Cochineal, of each two drams; infuse these in a quart of White Wine, letting it stand in the sun, or by a warm fire, twenty-four hours.

Take a pint of the first infusion, and a gill of this tincture for a dose, which may be given once a day or oftener, as the symptoms require.

If the Horse's Mouth continues pretty much lock'd up, that he receives his drinks with difficulty, sufficient intervals must be allowed between every hornful; and indeed this caution is as necessary here as in those cases where we suppose inflammations or impostumes in the Lungs. But good rubbing and the use of nervous liniments externally, are no less necessary than internals; for such is the nature of all cramps and convulsive contractions, that unless the convulsed parts be continually warmed with stimulating things, and frequent frictions, the contractions will grow stronger and more obstinate; and further, because convulsed Horses are apt to be exceeding costive, it is necessary to give glysters often, till they come to the use of their Jaws, and are able to feed tolerably well; After which, purges are exceeding proper, not only to attenuate the Blood, but to drain off the superfluous size that clogs the Muscles and hinders the vibrations of the Nerves, or the free intercourse of the animal spirits.

spirits. The following will be found the most beneficial in this case, wherein the common purges of plantation Aloes would be hurtful, being more apt to create nervous disorders than to cure them. Therefore,

A proper
purgé for
a convul-
sed Horse.

Take Succotrine Aloes, one ounce; the cleanest Myrrh, half an ounce; Assa Fœtida and Gum Ammoniacum, of each two drams; Saffron, one dram; beat the ingredients till they come into a paste, then form the whole into a ball with Syrup of Marsh Mallows, and roll it in liquorice powder or flour.

These may be given one in a week, and continued three weeks or a month, or longer, if needful. They will just open the Horse's Body, and work as an alterative to cleanse and purify the Blood, and so gently that the Horse may be used moderately in any kind of business in the intervals between the Purges.

CONVULSIONS and STAGGERS, from a Retention of the Dung and Aliment.

THIS is a case I have several times met with; and tho' it is seldom dangerous where there is no complication with some other distemper, yet it sometimes proves fatal, when it happens not to be rightly understood. And I have known in some instances the Stomach and Guts so extremely crammed, that it has scarce been possible to administer any relief.

The cause. These stoppages proceed from various causes, and only affect the Head when they happen to be

be of some continuance ; sometimes they are caused by full feeding, with the want of air and sufficient exercise, especially in hot dry weather, and in constitutions naturally hot ; but most usually from the nature and qualities of their food, as bad hay, or any other bad provender, as rank clover, when it has imbibed moisture from the damp fogs, which renders them so tough, that they lie like a wad, and distend the Guts so as to impede their proper functions. Other things have also the same effect, as soiling Horses with any kind of green herbage, when it chances to be grown too old and tough, and has lost its succulency ; especially when it has been cut too long before it is used. All these things often cause stoppages in the Guts and first Passages, and will sometimes excite such disorders, as by their continuance affect the Head in a very sensible manner.

When the Staggers and convulsive symptoms arise from such causes, the Horse generally looks dull about the Head, with his Eyes swoln, is feeble, reels and totters as he moves, his Mouth is generally stiff, but not quite shut up, as in the cases above described ; is short-breathed upon the least motion, and for the most part a short cough, because the fulness of the Stomach and Guts bolsters up the Midriff so as to press continually upon the Lungs, and thereby interrupts respiration ; and as a consequence of this, the motion of the flanks is irregular, tho' seldom violent. For the same reason he scarce ever lies down till some relief

The figure
thas ac-
company
this kind.

is given him, because the extreme fulness of the Stomach and Guts causes great uneasiness, whenever he offers to bend his Body, in so much that many when they see a Horse in this condition, are apt to imagine he has received some hurt in his Back or Loins. Other signs are costiveness; for he is apt to strain much when he goes to dung, and has many fruitless motions; he stales but little, and that of a dark colour, which often proceeds from the obstructions the Gall meets with in its passage from the Liver into the Guts; and thereupon the Yellows sometimes also insue.

The Cure. In order to the Cure, let some person that has a small hand rake him thoroughly, and bring out the dung that lies in the Streight Gut, which is generally hard, and made up of little small Balls, of a blackish colour, and quite dry; without moisture. After this let him have plenty of emollient oily glysters, made of Mallows, Marsh-Mallows, the herbs Mercury, Pellitory, and such like; but in places where these cannot be readily got, they may be made of pot-liquor, water-gruel, or any kind of meat broth. To three pints or two quarts of the liquor may be added a pint of Lintseed Oil, and half a pound of Treacle, or a pound of brown Sugar, to be given milk warm, and repeated every day, at least till his dung comes away with ease, and grows soft. His diet should be the best hay, scalded bran, scalded chaff, or boiled barley, till he has been thoroughly emptied, and for some time afterwards. At first his dung that comes away with

the glysters, will be in small hard balls, and sometimes along with it a nasty putrid slime, which when once discharged, gives great relief; but by the continuance of the glysters, and the open diet, the dung soon alters, and comes away in such great loads, that one would scarce imagine it could pass through the fundament; but as soon as this happens it brings sure relief, and a way is made for gentle lenitive purges, which in this case are always the most successful, and nothing dangerous.

Take Lenitive Electuary and Cream of Tartar, of each four ounces; brown Sugar, two ounces; mix them in a pint and a half of mild Ale; the Ale to be made hot, that the Cream of Tartar may be the more easily dissolved in it; after that the Sugar, and last of all the Lenitive Electuary.

This is to be given in the morning, upon an empty Stomach, blood-warm, and it will probably begin to work before night, and seldom makes a Horse sick, as the stronger purges are apt to do, when a Horse is full and costive; so that he will drink warm water, or warm gruel, without reluctance. It may be repeated three or four times, allowing always two or three days respite between each draught, keeping him to an open diet, with proper exercise, till he recovers his usual vigour.

By this method several Horses have been cured that were very much affected in their Heads with convulsive symptoms, where the event has shewn that this affection was plainly

owing to a stoppage of the aliment and excrements hindering a proper digestion; of which I shall mention one instance of a Horse that was sent home from *Hounslow-Heath*, when the troops were encamped there. He was so much convulsed, that he could neither eat his hay nor corn, and his Neck so stiff that he could not reach to drink. The man that led him was forced to stop almost every hundred yards, because of the stiffness of his Limbs, and the shortness of his Breath, by the shutting up of his Mouth. However, when I saw him, he did not appear to be near so much convulsed as those that have vermin in their Stomachs, or Impostumations in the inward parts. By working his Mouth I could open it a little way, neither were his Limbs so stiff nor so much contracted. I observed him to be very costive, for he often made motions to dung, but could not, except two or three little small hard black balls, which shewed the necessity of opening oily glysters. He had two every day at first, which brought him to dung pretty freely, and soon recovered the use of his Jaws, so as to eat hay and scalded bran. After this he had opening drinks administered to him, such as the last inserted; and the dung that he voided in a course of mild purgation, was in vast loads, and must have lain a considerable time pent up within him, being not unlike what we see rotting in a dunghill, both in smell, colour, and consistence; and when this load was once discharged, he soon recovered, and without the help of other means.

I shall

I shall conclude with a very extraordinary case of this nature, that proved mortal. It was of a Horse belonging to the second troop of Grenadiers, at grass, about three miles from town, along with some others of the same troop. He was observed to lag behind his companions, by himself, for several days, which always denotes sickness and disorder; for a Horse that is in health, tho' he may sometimes stray by himself, yet he will not continue long from his company. But this was not much observed by the guard who looked after the Horses, till he was scarce able to move at all, otherwise his death might have probably been prevented. He was so extremely oppressed, that several men had much ado to get him to town, and were obliged to support him all the way to keep him from falling. His Eyes were so set in his Head, that he took not the least notice of any thing that came near him, but appeared the same as if he had been already dead, and with every motion he reeled and bore forwards, ready to tumble on his Nose, if he had not been held up. His Legs were stretched out and stiff, without the least use of his Joints, and by their coldness shewed the Blood to be altogether come to a stagnation in those parts. So that in a few hours after his coming to the troop stables, he dropped down dead as a stone, without the least struggle.

I was greatly surprized when I saw this Horse opened, to find his Stomach and all his Guts, both large and small, filled and crammed to such a degree, that it would have been im-

A very remarkable case of an extreme plenitude and fullness of the Stomach and Guts of a Horse that proved mortal.

possible, by any means whatever, to have procured the least vent. For all the aliment that was in his Stomach, and the dung in the intestinal tube, from one end to the other, was entirely dry, and without moisture; and before they were ripped open, appeared as hard and full crammed as a *Bologna* sausage, without the least yielding or softness in any part. The matter contained in them was no less extraordinary; the Stomach being filled with acorns, flos, oak-leaves, and such other things as he could pick up about the hedges, some green and some withered; for it was now towards the latter part of the year. The contents of the Guts were chiefly leaves, neither well chewed nor digested, with a mixture of grass; but there was little or no grass in his Stomach, but chiefly acorn-cups and leaves, which was distended to its utmost extent, so as to keep the Muscles at their full stretch; by which their action, which is necessary in digestion, was altogether at a stand.

I am apt to imagine that this Horse, who was upon a very rank after-mash, had been so surfeited that he came to loath his grass, and his appetite being depraved, had taken to those things that were acid and sour to the taste, which must have greatly aggravated his distemper by their restraining and binding quality. I rubbed the contents, both of his Stomach and Guts, between my hands, which crumbled like dung dried in the sun, without the least drop of moisture or any ill savour; for there was no room for air to be pent up in them, where-

wherein is the stench, chiefly, that is felt in opening the intestines of dead animals; and indeed, it was somewhat extraordinary that he lived to come to this extremity, where the muscular action of the Stomach, and the peristaltick or vermicular motion of the Guts, by which the expulsion of the excrements is forwarded, must in all probability have been lost for several days. I can assign no other reason for his holding out so long, but that he was in all respects extremely sound, and little else to be seen but a beginning inflammation in some of his internal parts; which, considering how unmercifully he was crammed, could not be otherwise expected.

This happened about 17 years ago, in a very wet season, when the Horses were so clogged, that many of them began to fall off their flesh before they were taken up.

We meet with some instances among men of voracious appetites, that have died suddenly after an excessive meal, by filling their Stomachs to such a degree, that the strongest emetics could have no effect upon them. But these instances in men are not very frequent; for if a man's Stomach is not filled too suddenly to its full extent, (which has sometimes happened to those who have bruitishly eat for a wager) he will go nigh to vomit of himself, and so get rid of his enemy. But an excessive fulness of the Stomach and Guts must always create great disorders in a Horse, who has no natural disposition to vomit; so that all possible means must be used to preserve the passages downwards free and open, according to the method above described, *viz.* by glysters, lenitive purges, and an opening diet, that being all the chance he can have for his life, in such circumstances.

C H A P. III.

Of the Diseases of the EYES.

THE Diseases that affect the Eyes of Horses are neither so numerous nor so much complicated, as those that affect the human Eye, though Horses are much more apt to go blind than Men, when once disorders happen in their Eyes, unless they be speedily removed; the reason of which will, in some measure, be accounted for, in the prosecution of this subject.

The Antients very circumstantial in describing the diseases of the Eyes.

The ancients were wont to reckon up a great many diseases in the human Eye, by giving names to almost every accident or blemish that happened on any part thereof, accounting these as so many distinct maladies. And tho' this was indeed an instance of their great accuracy and industry, yet it has multiplied the diseases of the Eyes beyond what they really are, and has rendered the study of those things very difficult, especially to young practitioners and to the unlearned. The *Italians*, *French*, and other foreigners, who in some preceding centuries wrote professedly on the diseases of Horses, for the instruction of the farriers in their times, have very much copied after the antients, by describing almost as many diseases in the Eyes of Horses as the first writers in physick have described in the human Eye; and by enumerating a great many names and distinctions in different species, or rather appearances of the same disease, have led their followers into a great

great deal of perplexity; by treating symptoms in many cases, as original maladies.

It is true, Horses have several of the same diseases happen to their Eyes that are incident to Men, and ought to be treated nearly in the same manner; but as their food is more simple, and as they are not liable to fall into intemperance, so there is some difference also in these maladies; and I have seldom met with any such thing as a strumous or scrophulous Sore or Ulcer, or, in other words, any appearance of what we call the Evil in the Eye of a Horse, or of any symptom derived from a scrophulous Blood: But most of the maladies that affect their Eyes, proceed either from external accidents, as blows, wounds, and contusions; or from internal causes, as Fevers, Surfeits, and such like; or from a natural weakneis, and ill conformation of the Eyes, which I have reason to believe is often hereditary, and therefore the most difficult to cure.

Blows and Contusions on the EYES.

HORSES frequently meet with Blows and Contusions on their Eyes, which are more or less hurtful in proportion to their degree; for a slight Blow, or a slight Bruise, or a Bite of another Horse, tho' at first painful, and apt to make the Eye swell and run down with water, yet such are often cured only by bathing the Eye with cold spring-water, which repels and hinders a Flux of Humors falling
X 4 upon

Blows, &c. on the Eyes. Part III.

upon it. But if the Eye be any ways inflamed and swoln, it will be necessary to bleed directly, and to apply some cooling Cataplasme to the Eye, such as are made of the pulps of roasted or boiled apples, cleared from their husks and seeds, or Conserve of Red Roses, spread on a doubled linen cloth, and bound gently over the whole Eye; or a pledget spread with Alum curd, applied in the same manner, and renewed as often as it turns dry. I seldom use any other thing in such cases, besides a tincture made with Red Roses, and a few grains of Sugar of Lead, in the following manner.

Take two drams of Red Rose Buds, either fresh or dried; infuse them in half a pint of boiling Water, in the manner of making Tea; when it has stood to be cold, pour off the infusion, which will be of a reddish colour, and add to it a scruple, which is twenty grains, of Sugar of Lead.

The Sugar or Salt of Lead will make the Rose Tincture of a muddy green colour, when it is shook. The best way to use it is thus; bathe the Horse's Eye and Eye-Lids all over, with a bit of clean sponge or clean rag dipped in it, three or four times a day; and it will seldom fail to make a cure in a short time of any Blow or Bruise on the Eye, that has no uncommon symptoms, or where the Eyes are not naturally weak or previously diseased. The Rose Tincture is a good restraining and strengthener, and the Sugar of Lead being a salt made of Lead, with distilled vinegar, is intensely cooling, and prevents

prevents any immoderate flux falling upon the Eye, which ought to be chiefly regarded in all such cases.

Sometimes, when the Blow hits directly the middle and most prominent part of the Eye, the Eye-ball turns white, and this whiteness is of different degrees, according as the injury received happens to be more or less violent. Sometimes the pupil or sight, the *Cornea*, and all that is usually clear and pellucid, becomes the exact colour of a pearl; and where the Stroke has been more violent, the Eye will appear more white and opaque, resembling the white of an egg when boiled. In the first case, when the whiteness is only of a pearl colour, the Horse has usually some glimmering of light; in the latter he is quite blind, while his Eye continues in that state. This whiteness proceeds from a stagnation of the juices of the *Cornea* or horny coat of the Eye, which juices, in their natural state, are clear like water, and may possibly turn white when they happen to be heated and inflamed, as the Blood in the fleshy parts, from a Blow or Contusion, first appears with a settled redness, and then turns black. I have frequently seen the Eye all over white with a Blow, without so much as a weeping, or the least appearance of weakness, the Horse never offering to shut the blemished Eye more than the other; and in this case the Eye has been cured in a few days, only with bleeding and the use of the above inserted Eye-Water.

The
symptoms
of Blows,
&c. in their
different
degrees.

But

But when a Blow happens to be given with great force, the Eye will not only turn white, but the *Tunica adnata*, its uppermost coat, which answers to the white of the human Eye, will be also visibly inflamed; though in a Horse it is very much streaked with brown, that coat being full of little small twigs of Arteries and Veins, which upon any hurt or weakness become turgid, and are the cause of redness, heat, and pain. I have seen a Horse's Eye, by a violent Blow, or from the bite of another Horse, look like a white stone set in a cornelian. In this case the Eye is generally shut up till the inflammation is abated, and the inflamed part grows yellow, as almost all inflammations do in their going off, and then we often see a white Blister on the *Cornea*, sometimes the bigness of a grape, and this always proves a great relief, and when it breaks soon, accelerates the cure. But when it happens to be seated deep in the *Cornea*, with a mixture of redness, it is apt to leave a little scar, sometimes the size of a barley corn, sometimes no bigger than a lentil, and often, with good management, so small and thin, that it is scarce to be perceived, unless a person come quite close to the Eye. I have had many of these accidents under my care, and never knew any of them do amiss where the Eyes were naturally good, and that the Horse had not been first tampered with before I was sent for. I have been concerned with somewhere the Eye has been so much swoln and raised out of its socket, that the Eye-Lids could not be closed till it was reduced by the help of proper applications;

cations ; and yet the cure has been compleated in a short time, without the least blemish or defect.

The right way to manage all these disorders, is by treating them with milder or more powerful applications, according as the symptoms are more or less aggravated. If the Horse be loaded with flesh, or of a gross constitution, The Care of Blows and Contusions, &c. evacuations by bleeding and an opening diet will be the more necessary, and in some cases rowelling. If the Eye be only turned white, and continues dry, without moisture, and the Horse keeps it open, nothing further will be required after bleeding, but to be bathed with some cooling Eye-water, such as has been directed, with a soft diet of scalded bran for a few days, avoiding any thing that is hard to chew, as oats and beans. But if a defluxion attends, and the under side of the Eye be inflamed, the Eye-Lids swelled and moist, and if the Horse by reason of the anguish keeps it shut, it will be proper in this case to use a digestive in the following manner.

Take of the Tincture of Roses, as above directed, four ounces ; while it is warm, dissolve in it an ounce of Honey, and thirty grains of Sugar of Lead ; shake the vial and bathe the Horse's Eye all over. Or it may be made thus, *viz.* Rose Water, three ounces ; Honey of Roses, one ounce ; Sugar of Lead, thirty grains.

If the Eye be moist and watery, a spoonful or two of red wine may be added, which will help

help to recover the tone of the Eye, thicken the matter that runs from it, and soon dry it up; and when once the Eye is dry and has gathered strength, that the Horse opens it freely of his own accord, if a blister or any blemish then remains on the *Cornea*, or any kind of soreness, it will be proper to sharpen this medicine, by dissolving a dram of white Vitriol in a little water, about a spoonful or two, and adding it to the whole quantity of the above-mentioned Eye-Water, or else to blow a little Vitriol and Sugar Candy into the Eye thus, *viz.*

Take white Vitriol, one dram; white Sugar Candy, half an ounce; grind them very fine in a marble or glass mortar, and blow a little of it into the Horse's Eye once a day, through a clean tobacco-pipe, or put a little into a corner between the Eye-Lids, with your finger and thumb.

If this does not take sufficient effect, make the powder with white vitriol and the finest loaf sugar, of each equal parts, and use it as the other, once a day, and the last mentioned Eye-water twice a day, *viz.* night and morning. But if the Eye begins to clear, and looks of a sky-colour, it will be sufficient to use the Eye-water alone, once a day, until it is quite transparent and clear.

But if after the Eye is grown strong, freed from all heat and inflammation, and can bear the light, there still remains a kind of scurf or scab over the Pupil, or any part of the *Cornea*

near it, raised in the middle dark yellow or brownish, and with whitish rays towards its edges; where this happens, the *Cornea* for the most part has been wounded, and is common when a Horse had his Eye bit by another Horse; and tho' this little tumor may not disappear so soon as we could wish, yet where the Eye is naturally good, it will often wear off by degrees, and leaves no blemish, unless it be seated deep in the *Cornea*; and when any blemish remains, it is for the most part owing to some mismanagement, especially by using applications that are too harsh for so tender a part, before the pain and anguish is removed; for the Eye is so delicate, that when the hurt is newly received, it is scarce able to indure the common Eye-waters, made with a solution of *Tutty*, the *Lapis Mirabilis*, or *Lapis Medicamentarius*, or any other that have earthy or metallick substances in their composition, much less powder of flints, egg-shells, or scuttle-bone, which some persons unwarily use. For I have observed upon the fullest trials made of these things, that nothing agrees so well with the Eyes of Horses as tinctures made of proper vegetables, or salts that will dissolve in water. These seem to be the most familiar and suitable to the Eyes, that are naturally humid and moist. I have used solutions of all the vitriols and other salts, and often with good success, but never with any hurt or injury to the Eye, when they are finely settled and cleared from their drossy parts, and properly applied.

Wounds

WOUNDS of the EYES.

WOUNDS of the Eyes are often dangerous and sometimes mortal, when they penetrate through the bottom of the orbit, where the branches of the optic Nerves pass from the Cerebellum; but if the Wound be not deep, though it pass through some of the coats and humours, it may be cured with proper care; and I have known these cures made in a much shorter time than one would easily imagine. But if a Wound penetrate thro' the *Retina*, which is composed of the optic Nerve, and many small twigs of Veins and Arteries, it will readily intail blindness, and perhaps convulsions and other disorders. The same may also happen when any part of the Bones that compose the Orbit or socket, in which the Eye is placed, are depressed or broken into splinters, and stuck into the tender Membranes, and other sensible parts.

The Eyes may be wounded in the same manner as the other parts of the Body, *viz.* by incision or puncture, and we find these also complicated with contusion and fracture of the Bones of the Orbit, and often with laceration or tearing of the Eye-lids, and the circumambient parts of the Eye-brows and Temples, which frequently happens from violent bites, and other accidents, and the method of cure, as to generals, is very near the same as in all other Wounds. But in regard of the extreme tenderness of the Eye, some particular cautions
are

are necessary to be observed, as bleeding, even tho' the Wound be but small, because the least irritation will easily bring a defluxion into the Eye, which ought by all possible means to be removed. The position of a Horse's Head, and the contortion of his Neck, contributes also to render the cure more difficult; and therefore all the methods of revulsion are proper, as rowelling under the Jaws, the Breast or Belly, especially when the Eye is much swollen and inflamed, as has been already recommended, in the case of blows and contusions: As for rowels in the Neck, I cannot say I ever saw them do much service to Horses, however useful setons and other issues on the Neck and Shoulders may be to Men in the like cases. As they are apt to be painful in the Neck in the manner Farriers put them in, they make a Horse restless and uneasy, and often prove a great injury to the Eyes, which require all the calmness and steadiness imaginable, until such time as the heat, pain, and inflammation is gone off or very much abated.

The Cure
of Wounds
in the
Eyes.

Necessary
cautions
to be ob-
served.

Another caution is necessary in curing Wounds of the Eyes, that no harsh application be made, while the pain and inflammation remains, and even not when these symptoms are gone off, if milder methods will do the business. Care must also be taken to keep the Horse low in his diet, especially while he is unfit for any other exercise, besides walking in the shade; and his diet should also be opening, as above directed; and if it be the grass season, cut grass or any kind of green herbage cannot be improper.

All

The Eye-
lid, how
to be
stitched
when cut.

All imaginable methods ought to be taken to keep the wounded Eye cool, by cooling applications, avoiding the use of the oil of turpentine, which our Farriers are busy with upon all occasions. If the Eye-lid is wounded and cut through, and the cut divides it so as the Lips part one from the other, it ought to have a stitch with a streight needle, such as the surgeons use for superficial Wounds, and not to be drawn too close, but just so far as to bring the edges together; and this is yet the more necessary when the Eye-ball happens to be wounded through the Eye-lid, that there may be room for the discharge of the matter. I have observed that the Eye-lid requires but one stitch, for when there are more, and these pursed together, as the Farriers generally do, and the Lips drawn close, such stitches will break in twenty-four hours, and leave the Wound in a worse condition that it was at first.

The proper dressing for Wounds of the Eye, is honey of roses and tincture of myrrh, viz. one dram of the tincture to an ounce of the other. The best way of using it is to dip a pledgit of lint in this mixture, made warm, and applied to the Wound, for tow and hurds are too harsh for the Eye. This dressing may be repeated once a day, until the Wound is healed up and cicatrised, and it will seldom fail of success, if no uncommon symptom appears, as swelling, pain, and inflammation, or a fracture of the bones that compose the orbit or socket of the Eye. In all which cases, the following fomentation will be of great service.

Take

Take Elder-flowers and red Roses, of each a handful ; Marsh-Mallows, half a handful ; Sal-prunelle, half an ounce ; Sugar of Lead, one dram. Infuse in a quart of boiling-water, and strain the infusion through a linen-cloth, and when it has stood to be cold add half a pint of red wine.

This fomentation may be used in the following manner : Take two thick woollen-cloths, or two pieces of swanskin, the breadth of two hands each, soak them in the liquor, made pretty hot, but not scalding, for the Eye will seldom bear any thing that is intensely hot, as other parts of the body. Wring out one of the cloths, and apply it over the wounded Eye, and when the first begins to cool, wring out the other, and apply them thus alternately, for the space of half an hour ; and if the fomentation grows cold in that time, let it be heated again over the fire. The Horse may have his Eye fomented in this manner twice a day, or oftner ; and the quantity prescribed will last forty-eight hours with good management.

When the shooting pain abates, which in some measure may be judged of by the sinking of the swelling, the digestion of the Wound, its discharging good matter, and the cheerfulness of the Horse's looks, the use of the hot stuffs may be laid aside, and only the dressing continued, as above directed, till the Wound is healed.

If any part of the Orbit Bones be broke, and feel loose, the cure will be retarded till the

The Cure broken parts are separated and cast off, during
when the which time, it will be proper to dress with
Orbit tincture of myrrh, or tincture of myrrh and
Bones are the tincture of euphorbium mixed together;
broke. for nothing agrees with the Bones but cleansing
tinctures and other spirituous applications.

I have known some instances, where the Bones round the Eye were broke; and in one particularly, part of the Orbit that forms the Eye-brow was so depressed, and drove down so hard upon the Ball of the Eye, that no means the Farriers could use were able to raise it, so as to give him any ease, which soon caused such violent Convulsions as brought him to his end. Another accident of the same kind happened many years ago, to a Troop-Horse that fell down in a hard party, and hit his Eye-brow against a large pebble that lay on the road, whereby a piece of the upper part of the Orbit was fractured, and depressed into the great hollow above the Eye. A country Farrier had industriously stitched the wound with several stitches, overcast, and filled it with dossils of tow, which put the Horse in such violent pain, that he forsook all manner of food until the stitches were cut and the dossils taken out. After this I caused him to be dressed with a digestive of common turpentine, made very thin with the yolks of eggs and tincture of myrrh, till the fractured Bones loosened, and grew bare in some places, after which I ordered pledgets dipped in tincture of euphorbium to be laid next the Bone, and the other common dressing over it; I also caused the Horse

to be bled, which had been omitted by the Farrier who first dressed his wound, for his Eye was very much inflamed and swoln, and when the Wound began to digest, there run a thick matter in very great plenty from the Eye as well as from the Wound. The Eye was only dressed with tincture of roses and sugar of lead, which agreed perfectly well with it. This and the great discharge from the wound soon gave relief, that the swelling subsided, and the Horse opened his Eye, which was no ways blemished nor his sight impaired.

In the process of the cure two pieces of the Bone of the upper part of the Orbit, that forms the Eye-brow that had been depressed into the hollow above the Eye, separated and came quite off; one was about an inch and a quarter long, and an inch the broadest part, and about a quarter of an inch thick. The other was smaller, and both jagged and spongy on their under side, with little holes and sinuosities for containing the medullary substance; but after the cure, the blemish was so small as scarce to be observed, but by those who knew the accident. And indeed this good success was in a great measure owing to gentle usage, in forbearing to make incisions, and not endeavouring to force the fractured pieces out before nature had formed a new substance to supply the defects, which I found by my finger to be very smooth and even. The cure was completed in two months, and the Horse continued in the troop afterwards many years, and did all manner of duty till he was very old.

Punctured
Wounds
in the Eye,
how to be
managed.

Sometimes also Horses meet with punctured Wounds in their Eyes, viz. when some sharp-pointed thing has run into the Eye-ball. These Wounds come chiefly by thorns, in passing through thickets or hedges, or by forks in the hands of barbarous or careless persons, especially when the forks are new, before their points are worn smooth and blunt, of which kind I have seen several, where the *Cornea* has been pierced, and the watery humor run out; but when the instrument passes no farther, the damage often proves small. The Eye sinks at first, and looks strangely, but usually recovers again in a few days, especially when care is taken to apply nothing to the wounded Eye, that may cause inflammation. I never found any thing better to use in this case, than tincture of roses with honey, or honey of roses, either alone or with sugar of lead. The juice of eyebright, or the juice of celandine, are also of use to help to wear out the scars which punctured wounds are apt to leave on the *Cornea*. But when the *Cristaline* humour is wounded, or if the puncture be large and the wound ragged, and has torn or broken any part of the *Iris* or *Ligamentum Ciliare*, or touched the *Retina*; the Horse may, in such circumstances, not only have his Eye much blemished, but the issue may be incurable blindness.

I had once a Troop-Horse under my care, whose case, in a great measure, illustrates what has been here taken notice of, concerning punctures in the Eyes of Horses: This Horse had the

the point of a fork pushed into his Eye, as he was running eagerly up to his rack, while his feeder was putting down his hay with a fork, which happened to be new and very sharp at the points. There was a small hole made by this puncture on the under side of the Pupil through the *Cornea*; so that the watery humour burst forth and run down his Cheek, accompanied with some few drops of Blood, by which his Eye became quite flat and sunk within its Orbit. He was presently bled, and afterwards was dressed only with tincture of roses and honey, put warm into his Eye, twice a day, by which he was cured in less than a fortnight, without any other blemish than a little crooked line, about a quarter of an inch long, and so faint, that it could hardly be discerned without coming close to the Eye. The wounded Eye was as full as the other, neither could we perceive his sight to be any ways defective.

About two years after this, the same Horse had the misfortune to meet with the like accident in the same Eye, by a fork, as was imagined, run into it, the second time, through the rack staves, by which it was irrecoverably lost. The hole was so large, that I could easily put the end of my little finger into it. At first his Eye was, for the most part shut, and had a continual running for several days of bloody water, during which time pledgets were spread with conserve of roses, and applied to the Eye, and over that dressing a cold charge made of bole vinegar and whites of eggs, with

a mixture of wine lees. This was laid over one side of the Forehead, and along the Temple and Cheek, and towards his Nose on the same side, to hinder, as much as possible, a greater fluxion upon the Eye. When the Wound began to digest, it run like a rowel, but in so great a quantity, that notwithstanding all endeavours were used to abate that symptom, with proper evacuations, yet the discharge never ceased till almost the whole substance of the Eye was intirely dissolved, and turned to matter, by which means the Eye perished, and was so wasted as to cause a very great deformity, which could by no means be avoided; though in all other respects, the Horse continued perfectly well and fit for his duty.

LUNATICK or MOON-EYES, and also
of CATARACTS.

I HAVE, in conformity to custom, made use of the common appellation of Lunatick or Moon-Eyes, though the symptoms here described, are no other than the fore-runners of Cataracts, and generally end in blindness. Signior *Ruini*, and most other foreign writers, both *French* and *Italians*, in treating the diseases of Horses, have all of them reckoned the Moon-blind symptoms, as a peculiar disease of the Eyes, without having any relation to a Cataract, which they have considered apart, as another disease of the Eyes, which shews they built more on books than experience. But from many years observation, I do not remember I have

have ever seen a Cataract bred in the Eyes of any other Horses, but those that have been called Lunatick or Moon-blind. The *Arabians* were the first that ascribed so much to the Moon in the diseases of the human body; and after the decay of learning all over *Europe*, their superstitious notions were so firmly rivetted, and so universally prevailed, that they could not be easily exploded, even by the ablest physicians, till the modern discoveries in natural knowledge made way for more solid improvements in the medicinal art; and therefore it is no wonder, that the first writers on the subject of Farriery (notwithstanding some of them were men of learning) should fall in with all the common superstitions that had so long prevailed, and had so great an influence on the practice of physick.

These writers have described this distemper, as appearing at certain times of the moon, coming sometimes at the new moon; sometimes at the full, at other times in the wane of the moon; that it sometimes returns once in three months, and sometimes once in two months, and in some not above once in six months; that the Eyes look so clear when the distemper abates, that it is impossible to see any imperfection in them. But these observations are very liable to exception, for any one that has the least knowlege of the Eyes, must needs see, that when the distemper is the most abated, and the Eye the most clear, it still shews a remarkable weakness, and upon full trial, the sight will be found defective.

How this distemper is described by writers.

could I perceive that the Eyes were affected by any of the moon's periods, so as not to vary, unless by meer accident. And therefore, these observations are neither of great use to the knowledge of the distemper, nor to lead us into a right method of curing it when it happens.

It is generally the forerunner of Cataracts.

I have already taken notice, that the symptoms, which appear in the Moon-eyed Horses, are, for the most part no other than the prognosticks of breeding Cataracts. These symptoms generally make their first appearance, when a Horse is turned five, coming six, at which time one Eye becomes clouded, and the Eye-lids swollen, and very often shut up; and for the most part a thin viscid water runs from the diseased Eye down the Cheek, which is generally more or less in proportion, as the Eye and Eye-lids happen to be more or less swelled and inflamed; and in some constitutions, the inflammation is so great, and the humour so sharp and corrosive, that it scalds and fetches off the Hair, wherever it comes. The Veins of the Temples, and under the Eye, along the side of the Nose, are also turgid and full; others run but little, and the humour not very sharp.

This disorder is apt to come and go, till the Cataracts are perfect and ripe, and then all pain and anguish, and the soreness and running of the Eyes go off with blindness, when the Horse is between seven and eight years old, this being about the time when most Horses are spread and come to their full growth; so that from its first appearance to its completion, is generally

rally about two years, or two years and a half, during which time, some Horses have the returns of the disorder, not only more frequent than others, but the symptoms more strong and violent. In some the Eye is not much disturbed above a week, when it clears up again, and returns to its former state. In some Horses, the Eye continues bad a fortnight, or three weeks. In others a month or longer, before the disorder goes off; and the time of the return, so far as I could observe in many Horses was always uncertain, and could not be fixed to any period of the moon, as many have imagined, being sometimes sooner, sometimes later, according to its predominancy, or according to the treatment a Horse meets with from his Farrier and keeper. Some have their returns once within the space of two or three months; some within the space of four, and with the greatest care and pains, the disorder seldom keeps off above five months without a relapse.

This is usually the case of those moon-blind Horses, that have their Eyes strongly infested with a hot sharp humour, that shuts them up with swelling and inflammation. But there is another kind of moon-blindness, which is also the forerunner of Cataracts, where no humour or weeping attends the Eye. It is never shut up or closed, as in the case above described, but will now and then look thick and troubled, at which times the Horse sees little, and perhaps nothing distinctly. Here the Eyes always appear sunk and perishing, though the Cataracts
do

do not come so soon complete, as in those that are full, and where a humour is predominant ; nor is it unusual in this case for one Eye to escape, whereby a Horse will retain sight to guide him, so as to render him fit for common drudgery. I have likewise known Horses breed Cataracts, sometimes in one Eye, sometimes in both, where the symptoms have been so favourable, as neither to be taken notice of by their owners, nor by others, till the Cataracts have been visible. But upon enquiry, I always found these Horses had been addicted to startle and much more sometimes than others ; and upon examining the Eyes, observed them to be sunk and in some measure perished.

Some thoughts concerning the cause of this distemper.

The causes of this distemper are various, and when it proceeds from a natural defect in the Eyes, it may, no doubt, be hereditary ; but in a Horse that has naturally good Eyes, and yet turns moon-blind, it is usually owing to sickness, or some other malady, that has terminated in the Eyes, which sometimes happens ; but we seldom see Horses turn moon-blind and breed Cataracts, but where the Eyes are naturally in fault. These Eyes are for the most part faulty, that are very large and prominent, or very flat, small and sunk ; both which defects in the Eyes of Horses are liable to blindness, though they differ in their manner ; and therefore Colts, that have large Eyes, that run abroad, and always feed with their Heads downwards, continually exposed to the sun in hot weather, may easily contract an habitual weakness in their Eyes, especially as the blood
and

and juices of all young animals are naturally of a viscid and balsamick contexture, and so may be the more easily retarded in the vessels of the Eyes, which are exquisitely fine. These things produce weakness, and relaxation in the Eyes, and this still encreases so long as the Blood is in that state, which we may reasonably suppose to continue till a Horse has done spreading, and turned seven, for then the Cataracts generally grow complete. On the other hand, when the Eyes are flat, and lye deep within their Orbits, the surface of the Eye being also fattish, the rays of light falling directly upon the pupil, and these not being sufficiently refracted, as on those Eyes that are more convex, or in other words on Eyes of a rounder make, must needs weaken the Eye, affect the optick Nerve, and consequently weaken the tone of the Muscles; and with the Cataracts also induce the symptoms of a *Gutta Serena*; and this may be the reason why the Eyes perish and decay while the Cataracts are growing.

Other causes of Cataracts and Moon-blindness, are Fevers, some of which remarkably affect the Eyes, especially those of the bilious kind, when the Eyes swell and turn yellow, and that symptom not carefully attended to in the cure. Sometimes inveterate colds, with a Catarrh, will also affect the Eyes, and shut them up for several days, and thereby induce weakness, which frequently ends in Cataracts. The Strangles, when imperfect, when they are opened and the matter let out before they come to maturity, or when the humour

Sickness
in Horses
sometimes
the cause
of blindness.

mour is repelled by improper applications, or other ill usage, will also cause a weakness in the Eyes, and produce the same effect. Sometimes also the Eyes of Colts and young Horses are affected, and turn moon-blind in breeding their Teeth. Horses that peel about their Heads spring and fall, if the humour chances to be suddenly repelled, it is apt to fall upon their Eyes, and turn them moon-blind. But in all cases of moon-blindness, it is not improbable there may be such a conformation of the Eyes of some Horses, as may render the same accidents dangerous to them that would not be so to others.

The signs. The signs of this distemper may, in some measure, be deduced from what has been already taken notice of in its description, viz. swelling and inflammation of the Eyes alternately, sometimes one Eye, sometimes the other, with a running of a thin watery serum, which is often so hot and scalding, as to fret off the Hair. In others the Eyes run but little, and some not all, but look deadish, sunk, and perishing. In all moon-blind Horses, the Eyes are sometimes tolerably clear, at other times thick and muddy, of a wheyish colour, or a dusky yellow; and when this happens, a moon-blind Horse sees very little, and when he is brought out into the light, he takes little notice of any person or object that is near him, but always looks upwards, with his Head raised, lifts his feet high, and sets them down with fear. Tho' in this distemper the humour shifts from one Eye to another by turns,

turns, and at some intervals seems to go off, yet when their Eyes are at their best, they look weak and with a deadness, and when any such Horse has his Head held up, the weakness of the Muscles and the whole Eye is easily perceived.

When this distemper happens to Horses that have large full Eyes, resembling those of a calf, and when the humour continues by long periods, and the returns frequent, there is great danger of blindness. If the Eyes be of a moderate size, well formed, and the periods or returns of the distemper short; if the Horse sees perfectly when the humour goes off, and the Eyes in those intervals look clear, the Horse may recover. When the humour attacks one Eye, without changing to the other, there is also hopes of a cure, at least, of saving one Eye; but when the Eyes looks flat and depressed, and decay gradually, it is generally the forerunner of blindness; for in this case the Nerves and Muscles of the Eyes are affected, and the Cataracts always grow in the progress of the distemper, which seems to be complicated with a *Gutta Serena*: And here also, as in the preceding case, when the distemper seizes only one Eye, the other sometimes may be saved, and when this happens the remaining Eye generally grows stronger when its fellow is gone. But when the distemper proceeds from a violent cold, as sometimes happens, whereby we often see the Eyes swollen and quite shut up, though the Horse may be threatened with blindness by several returns, yet by good management it may sometimes be prevented,
and

and the Eyes recover, and likewise when the Eyes are darkened with a yellow cloud, the distemper does not always prove incurable, provided the Eye is not naturally bad, and this symptom of long continuance. In all cases of moon-blindness, the most promising signs of a recovery are when the attacks come more seldom, and their continuance grows shorter: When the inflammation and swelling in those Eyes that are naturally full and large, abates. On the other hand, when the Eyes, that look sunk and perishing grow more plump and full; and when in either, the *Cornea* looks clear and transparent, without muddiness, and the Horse looks more attentive to his way, and goes on without much fear or startling; all these are promising signs, and with good and careful management he may recover.

The Cure

I shall now proceed to the most difficult part, *viz.* the cure, for few moon-blind Horses escape; and when it is hereditary, when the Eyes are naturally defective, I should never advise any one to be at much expence and trouble to save them, for fear he should meet with a disappointment. Yet we sometimes see moon-blind Horses, or at least that have many of the same symptoms, recover and do well, even beyond expectation.

If the Eyes are large, full, swollen, and inflamed, the Horse should be bled at proper intervals, sometimes in the Neck, and sometimes backward, to make revulsion. But where the Eyes appear sunk and perishing, bleeding is often pernicious. After bleeding, for those
that

that are full and run a thin sharp water, make a strong tincture of Roses, as has been directed above, *viz.* Take four ounces of this tincture, dissolve in it half a dram of Sugar of Lead, and wash the Horse's Eyes, and all over his Eye-lids, with a piece of sponge or a clean rag, twice a day. If the matter digest and thicken, which usually happens before it abates, add to the whole quantity of this tincture, about two drams of Honey, which will dissolve by holding the phial near the fire, and shaking it, and use it as before. At the same time if the parts near the Eye be hot, and the Veins over the Face and along the side of his Nose, be turgid and full, bathe those parts frequently with the best Vinegar, Verjuice, or Vinegar of Roses, till the heat and running of the Eye abates, and the Veins sink and grow less apparent, and also till the Eye begins to look clear; in the mean time some few lenient mild purges may be administered, as the following.

Take Lenitive Electuary and Cream of Tartar, Proper
of each four ounces; Syrup of the Juice ^{scouring}
of Buckthorn Berries, two ounces; mix ^{for moon-}
these with white Wine and Water, warm'd, ^{blind}
about a pint, and give it fasting: Or this, ^{Horses.}

Take Lenitive Electuary and Cream of Tartar,
of each four ounces, as in the preceding;
Glauber's purging Salts, three ounces; the
solutive Syrup of Roses, two ounces; to be
mixed with white Wine and Water, or with
warm Water Gruel.

Either of these may be given to moon-blind Horses. The latter is rather the more mild and cooling, and exceeding proper, if the Horse be fat and full of Blood, and will work so gently, that it may be repeated twice a week till the Eye becomes clear and attains its usual brightness.

The Horse should have some feeds of scalded bran while these lenitives are given him, and he may have moderate exercise, or may be made use of in any kind of easy business; for these draughts, for the most part, work off in about two hours. But as the Blood in all these cases is generally fizy, and as this disposes young Horses to frequent returns of the distemper, it is therefore necessary to administer such things as may attenuate the juices and preserve them in a more fluid state. These are called alteratives, because their property is gradually to alter the state of the Blood. The following I have often made use of, in this and many other cases, with very great success.

A mild
purge
where the
Eyes are
weak.

Take the finest succotrine Aloes, half an ounce; or six drams; Cream of Tartar, half an ounce; fresh Jallap, in fine powder, and Salt of Tartar, of each one dram; make into a Ball, with a sufficient quantity of Oil of Amber, and roll it in Liquorice Powder.

One of these may be given every week, in the manner of a common purge, with scalded bran, and his water milk warm. The first day it will work plentifully by urine, and the day following both ways; but no more than
just

just to empty his Guts, unless when there is a foulness by reason of a redundant slime and grease. In which case I have often known one of these weak purges work powerfully two or three days, without the least diminution of the Horse's strength, or loss of flesh. These alterative purges should be continued for a month or six weeks, and after omitting another month to begin again, in all which time the Horse may be kept in any common business, except hunting, journey-riding, or other very laborious exercise.

In the intervals between the purges, I should chuse to give him an ounce of crude Antimony every day, made into a fine impalpable powder, in one of his feeds, which may be continued for three months or longer. But if the Horse ^{Alterative} be of value, instead of crude Antimony, he ^{powders} may have powders compounded with native ^{for the} Eyes. Cinabar, or Cinabar of Antimony and Gum Guaiacum, equal parts, giving him an ounce every day, till he has taken two or three pounds, and after an interval of about three months, to proceed in the same method till the Eyes look strong and clear, and that the Horse shews no signs of blindness, or any defect in his sight or weakness in his Eyes. Several gentlemen have by my advice followed this method with good success, where the Eyes have been full and no ways perished. A pound of Guaiacum Wood, ^{Decoc-} boiled in three gallons of water, to two, is a ^{tions for} cheap remedy, and may be profitably admini- ^{the same} stered to Horses of small value. It promotes ^{purpose.} perspiration, dries superfluous humidity, and

strengthens the solids when relaxed, sweetens the Blood, and may be given a quart or two every day, in a Horse's water, and will have a good effect to prevent moon-blindness where it is not hereditary, proceeding from a natural defect in the Eye.

The Cure,
when the
Eyes are
sunk and
perishing.

But when the Eyes are sunk and perishing, and the Eye-brows are pinched at their inner corners next the nose; when there is little or no inflammation or running, except a more than ordinary moisture in the *Caruncle*, or Haw of the Eye, or where there is no moisture at all, as we often find in many moon-blind Horses: wherever these symptoms are, a method of cure is required different from the preceding. For as we suppose here the Nerves of the Eyes to be affected, and the supplies of the arterial Blood by that means denied; therefore wherever the fault may be, whether originally in the Blood or in the Nerves, it is necessary, in either case, to administer such things as not only attenuate the Blood, but may cause a greater derivation thereof to the Eye: so that the most likely way to succeed is by the proper use of mercurials, and these such as are the most efficacious, and at the same time the most safe. But first of all let the Horse have the last mentioned purge given him by way of preparation, and when the operation is over, which will be mild and gentle, the following ball may succeed.

Take *Mercurius Dulcis* that has been often sublimed and dulcify'd, two drams; make it into a small ball, with a sufficient quantity of Conserve of red Roses and Wheat Flour.

Let this ball be given early in the morning fasting, and tie up the Horse from eating two or three hours after it, then let him have a feed of scalded bran, with warm water or warm gruel to drink, which regimen ought to be continued so long as he is under this course of mercurial and purging physick, cold water or other cold drinkables, being somewhat unsafe at such a time. The mercurial ball may be repeated every other day, in the morning, till the Horse has taken three or four. If his Mouth grows tender, which may possibly happen, if he be not of a pretty strong constitution, he must be fed with water-gruel for two or three days, till that symptom wears off. At the same time the purge may be repeated once or twice, and the following eye-water applied outwardly to both his Eyes, if both be weak and disordered.

Take Crude *Sal Armoniack*, cleaned from the black scurf that is usual on the outside of the cakes, two drams; dissolve it in a pint of warm Water or Rose Tincture; and add to it a gill of Spirit of Wine or the best Brandy, shaking them together in a small quart bottle.

Outward
applica-
tions for
moon eyes
that are
sunk, &c.

The Eyes may be bathed all over with this mixture, twice a day, or it may be used in the manner of a fomentation, by wringing cloths out of it, and applying them warm over the Eyes. This will act as a stimulus, and may also help to thin and rarify the gummy juices, and bring new supplies of nourishment to the perishing Eyes. At first it may cause

a little smarting, but after using it a day or two that symptom goes off, and if the Eyes grow more plump and full, there will be hopes of a recovery, at least of saving one eye; and therefore the best way upon this prospect is to proceed in the same method, after a month's interval, and so on, as you find encouragement; and in all these intervals I should recommend the use of the above prescribed powders in the Horse's feeds, or the decoction of Guaiacum in his water, or the decoction may in this case be made in the following manner.

Take a pound of Guaiacum shavings, that are fullest of the Gum, which are generally of an olive green colour; boil them in three gallons of clear forge Water to two, and give a quart every day in the Horse's water.

If a cloudy yellowness appears through the *Cornea*, which is usual when the distemper proceeds from the Yellows, half a pound of Turmeric bruised, and four ounces of Rhataponticum, with the other things prescribed for the cure of that distemper, may be added. And where the forge water cannot be procured clean, the same thing may be effected by quenching hot heaters in the water till it is of a blackish colour. Or a pound of old rusty iron may be boiled in the decoction. The iron will warm and invigorate the Blood, render it more thin and fluid, so as it may circulate with more facility and ease thro' the small capillary arteries of the Eyes. Or a pound of crude Antimony may be tied in a bag and boiled in the decoction;

decoction; either the Iron or Antimony may be of service, where the Eyes are sunk and perishing; the first from its invigorating warmth, and the latter from its healing sulphurs, in cases where the Horse abounds with sharp humours that shew themselves in breakings out about the Head and Neck, which is not unusual in this kind of moon-blindness.

As to the other helps made use of in the cure of this distemper, we find nothing so common as rowelling; and I have often, myself, complied with this method, which however I think is of little use, but where the Eyes are swollen and inflamed. In this case I have sometimes ordered a succession of rowels, at the critical returns of the distemper, *viz.* under the Jaws, in the Temples, in the Breast, and one on either side of the Navel, and at the desire of the owners, and in compliance with custom, I have caused rowels to be placed near the Tail, to make revulsion; but in these cases, I have known a running at the Heels do more service than them all, though in no respect to prevent blindness; for as soon as these drains are dried up, the symptoms generally return with greater force than before.

Some take up the Eye-Veins to prevent blindness, but without distinction, whether the Eyes are full with redundant humours, or sunk and perishing. In the latter case, the taking up the Veins may possibly be of service, because by that means the Eyes may be better supplied with its proper nutritive juices; but this too is uncertain, because the fault may be

A great mistake in taking up the Eye-Veins.

in the Nerves, or the distemper may proceed from some original configuration of the Eye, which may be defective, and then such operations are like to prove fruitless. But the taking up the Veins where the Eyes are full, must for the most part prove hurtful, by cutting off the channels which should convey the blood and juices from thence in the course of circulation, and consequently increase the distemper, instead of abating it. In this case, the taking up the Arteries might be of some service; but I fear such an operation would be too difficult for our farriers to undertake, and in the end might perhaps be uncertain.

The cutting out of the Haw.

The cutting out of the Haw is another operation usually performed on moon-blind Horses. The Haw is a swelling and spunginess of the *Caruncle* or fleshy substance in the inner corner of the Eye, next the Nose, and when this is soaked with too much moisture and humidity, it swells and turns spungy, somewhat resembling the *Fistula Lacrymalis*, or else what is called the *Albugo* and *Pterigium*, in the human Eye. The Membrane to which it adheres, also grows thick, and spreads itself so as to cover a considerable part of the Eye, but seldom reaches so far as to cover any part of the Pupil. The ligament that runs along the verge of this Membrane becomes horny or like a *Cartilage*; and when it arises to this state, it binds and compresses the Eye-ball like a hoop, and by its continual pressure causes constant pain, and increases all those bad symptoms that are the fore-runners of blindness.

Haws

Haws grow sometimes in Eyes that are not naturally bad, after cold and surfeits ; but moon-blind Horses indeed are seldom without them ; and wherever this symptom appears, that the Haws grows large and spongy, and derive a drain of humours upon the Eye, the operation becomes necessary, and is performed by taking hold of the Membrane with a small hook, such as the surgeons use in their dissections, and cutting off so much of the *Caruncle* as looks moist and spongy, with part of the Membrane and Gristle that make a pressure on the Eye. When this operation is well performed, it does great service, and often recovers Horses that are not subject to Cataracts ; and even in this case it makes the Eyes look somewhat better, and helps to protract the blindness, but will not prevent it when it is hereditary. This is an easy operation, and what almost every farrier pretends to, but the farriers are apt to cut off too much of this substance, and by that means weaken the Eye, and help on the blindness, instead of preventing it. The proper application, after cutting out the Haw, is Honey of Roses, or rather Tincture of Roses, with a little Honey dissolved in it. But if the Eye continue still to abound with moisture, after the Haw is extirpated, and threatens fresh Fungus's, the case may be deemed bad ; and then it will be necessary to blow into it a small quantity of burnt Alum and fine Loaf Sugar, equal parts, once or twice a day, or one part of white Vitriol, and two parts of Sugar, and in some cases it may be touched with the blue Vitriol Stone,

or the Lunar caustick ; but these violent symptoms seldom happen, and when they do we may suppose the Blood to have a very bad disposition ; so that it will hardly be worth while to attempt a cure, considering both the length of time and the uncertainty of success.

The Cataracts in moon-blind Horses described.

In dissecting the Eyes of moon-blind Horses, I have observed that their blindness generally proceeds from Cataracts, from a distemperature of the crystalline humour, though the other parts of the Eyes are also affected, both internally and externally. I have taken notice above, that the inflammation and swelling of the Eyes in those that are large and full, is attended with a rheum, which is sometimes so hot that it scalds the Cheeks and frets off the hair ; yet it may be observed, that it never abrades the *Cornea*, nor raises little tumours upon it, as the *Ophthalmia* and other inflammations of the human Eye, which I imagine to be chiefly owing to the short duration of this symptom on the Eyes of moon-blind Horses. For in the human Eye the inflammation and weeping in an *Ophthalmia* and blood-shot Eyes, is often attended with a scrophulous disposition, and continues for a long time ; but in moon-eyed Horses being periodical, its continuance is but short, and the running leaves their Eyes as the other symptoms abate ; so that what damage happens to the *Cornea* in so short a space is generally repaired before another return of the disorder ; and in that case, where the Eyes are dry and perishing, they are never exposed to any such accident. This I have mentioned, because

because the *Cornea* in all moon-blind Horses, both those that are full-eyed and those that are flat and sunk, for the most part appears sound and transparent, after the sight is quite gone. In the latter, the watery humour appears almost totally exhausted, but in the former, its quantity is rather increased, but much more viscid, glary, and troubled, than in an Eye that is perfectly sound. In all those Eyes I have examined, the crystalline humour had lost its solidity and transparency, and a white filamentous thready substance was derived from several parts of its surface, and hanging down like a fringe made up of fine white threads, filled a good part of the space between it and the *Cornea*, so as to obstruct the rays of light, and cause blindness. And when we view a Horse's Eye that is gone blind with a Cataract, the Cataracts appear through the *Cornea*, like a large pearl in the *Pupilla* or sight of the Eye. And in those Cataracts that are variegated with brown, black or greenish spots, as some are, I have observed the *Ligamentum Ciliare*, the *Iris*, and sometimes the *Uvea*, affected in the same manner as the crystalline humour, with little brushes or threads of brown, black, or green, mixed with or spreading over the Cataract of the chrystaline humour. From all which it appears, that in moon-blindness, the crystalline humour is not the only part affected, but the other humours and coats of the Eye become also diseased, and the Muscles relaxed and weakened, which renders the cure always difficult, and for the most part impracticable.

GUTTA

GUTTA SERENA.

A *Gutta Serena* is that kind of blindness where the Eye looks clear and transparent, without any visible blemish or defect.

This may proceed from any thing that obstructs the Blood in the Arteries and other vessels of the Eyes, causing a pressure on the optick Nerves, which in a *Gutta Serena* are generally found to be perished and decayed.

The cause is sometimes from an ill state of the Blood, when it happens to be extremely viscid, or perhaps when it is poor and vapid, whereby the Nerves become affected, as in many lethargick and paralytick cases, which in the human body sometimes produces a *Gutta Serena*. This distemper of the Eyes is also caused by blows or wounds on the Head, and by several other accidents; but Horses are seldom subject to it, and I have not seen above two or three Horses blind with a *Gutta Serena*, unless where it may be complicated with a Cataract, and those Horses were of the draught kind, and probably their blindness was caused by hard straining in their work, before they had arrived to sufficient strength for labour.

A *Gutta
Serena*
d. scribed.

The signs.

The signs of a *Gutta Serena* in a Horse, are these. He always appears when any one happens to handle him as if he was more than ordinarily shy about the Head, especially to strangers; for blind Horses can distinguish strangers from those that look after them and feed them, by the voice and other tokens.

When

When he is brought out into the light, he often pricks up or moves his Ears, raises his Head high, as a Horse when he looks upwards to the light, of which he may for a long time have some little glimmering. When he moves he also lifts up his Feet exceeding high, and sets them down with fear, not seeing the ground nor any objects round him ; and if his Face is turned to a wall when the distemper is compleat, he will run against it, notwithstanding no other defect can be seen in the Eyes, than that they are in a great measure immoveable, and keep one direction, otherwise they look clear and without blemish. Another thing to be observed in a *Gutta Serena* is, that it generally seizes both Eyes at once.

This sort of blindness is in a great measure incurable, unless a Horse be young, and when it is discovered in time ; for as no defect is to be seen in the Eyes, it may go on and not be found out till it is too late for any thing to be done. It may be sometimes cured when it proceeds from the Staggers, as in the instances I have related, of a Troop-Horse that continued three months after his cure of that distemper stone-blind, without any visible defect of his Eyes, and afterwards came gradually to his sight. But these instances are few, and seldom to be met with. And where a cure is attempted it must be performed chiefly with mercurial medicines, such as Calomel, Cinabar of Antimony, native Cinabar, mild purges, at proper intervals, and rowels ; but bleeding is often hurtful, and should be taken only in very small quantities,

quantities, except in plethorick constitutions, that abound very much with Blood; in such a case bleeding freely may be of use, as it may lessen the quantity of the Blood, in the small Arteries, which by their continual plenitude and pressure, may in time destroy the proper functions of those Nerves that are distributed to the Eyes.

C H A P. IV.

Of FEVERS.

Definition
of a Fever,
with the
various
Kinds of
Fever.

ALL Fevers consist in a more than ordinary degree of motion in the Blood, attended with a preternatural heat, and in some with inflammation and burning. Some Fevers are more simple, and others more complicated. In some the Fever rises and falls, being higher at one time than another; and some Fevers are periodical, and come only at a certain time, even to an hour or to a minute, once or oftner a day, once in two days, and sometimes once in three days; and as soon as these periods are over, the Fever generally goes entirely off, till its usual time of return, which by continuance, becomes habitual. All these periodical Fevers are called Intermittents; but these seldom happen to Horses. And the other Fevers, whether they be more or less compounded, *viz.* whether they are simple, inflammatory, malignant, putrid, or pestilential; whether they rise higher or lower, or have any other variations; yet if the Fever does not totally go off, but

but remains in some degree, such are usually termed continued Fevers, as consisting only of one period. Almost all symptomatick Fevers, which arise from accidents of any kind, or from the diseases of particular parts, generally constitute Fevers of the continued kind, and always remain in a higher or lower degree, until the cause by which they are produced is removed.

Of a Simple continued FEVER.

A SIMPLE continued Fever, as has been observed, consists in a more than ordinary rarefaction of the Blood, with an increase of its motion, and where there are few or no symptoms of any other disease, in which we suppose the Blood to be little, if at all vitiated; the principal Viscera sound, and no ways hurt or injured by any previous accident, or concomitant disease; and admits but of one single period, having no intermissions, as some other kinds of Fevers, where the state of the Blood is changed or altered.

A simple
Fever de-
scrib'd.

This Fever seems to be very frequent in hotter climates, as appears from the writings of Signior *Ruini*, *Soleyfell*, and other foreign authors; and I have frequently met with it among our own Horses, in the summer especially, when the weather has been hot and sultry, and the air much rarified. However, a simple Fever is seldom dangerous, but when ill-managed by the

Simple Fe-
vers usual
in some
hot tea-
so 15.

the ignorant practitioners, who by improper applications often change simple Fevers into these of the complicated kind.

The cause
of these
Fevers.

Simple Fevers may proceed from any cause that tends to rarefy a Horse's Blood too much, as working or travelling in very hot weather; sometimes from a diet too hot and rarifying, as too many oats, and perhaps some kinds of hay and grass may have the same effect; it may also proceed from a particular temperament and disposition of the air, which I imagine to be as frequently the case as any other; for I have known several Horses in this Fever, at the same time, and in different places, where no other visible cause could be assigned for it.

The signs
and diag-
nosticks.

The signs are some of them in common with most other Fevers, as restlessness, beating at the Flanks, the Eyes red and inflamed, the Tongue parched and dry, by an increased perspiration. As in complicated Fevers Horses often look dull, heavy, and listless; in this, a Horse generally looks lively, moves his Ears backwards and forwards, and is very attentive to any noise, but loses his appetite, and sometimes so far that he eats nothing at all for a day or two, ranges from one end of his rack to the other, and nibbles at his hay, pulling it out without chewing it, as if he was curious and dainty; he generally smells at clean litter, and begins to eat straw before he can relish his hay. As in other Fevers, where the Blood is vitiated, or where the principal Viscera are affected, the Ears and Feet generally feel cold, or alternately cold and hot: in this the Ears and Feet

Feet are commonly of an equal warmth with his other parts, which are generally hotter than ordinary, though not parched and dry, as in some inflammatory diseases. He dungs pretty freely, but not much, and that is usually hard and in small balls, but seldom greasy; he has sometimes difficulty in staling, and his urine high-coloured; he seems to thirst, but drinks little at a time and often; which I take to be owing to the distention of his Lungs and Midriff, for that causes him to be short-breathed, and hinders him from drawing down large draughts.

The first thing in order to a cure, is to bleed The Cure. to the quantity of three pints or more, if the Horse be naturally strong and in good case. After bleeding give the following drench.

Take chamomile flowers; sage and baum, of each half a handful; liquorice root cut into thin slices, half an ounce; sal prunellæ, or nitre, two ounces. Infuse in two quarts of boiling water in the manner of tea; when it is almost cold pour off the infusion, and sweeten with honey; but those who will be at the expence may sweeten this infusion with four ounces of syrup of lemons, or squeeze a lemon into it, which will make it both cooling and grateful; three hornfuls may be given four times a day.

As all cooling applications are proper here, The man- therefore his diet should be scalded or moisten-ner of ed feeding in Fevers.

ed bran; his feeds should be but small, for when given in small portions, it does not clog a Horse, as when it is heaped on him in large quantities, for this always makes a Horse take a dislike to a moist diet; which is a great loss, because the bran keeps him open, and therefore half a quartern three or four times a day will be sufficient, until he comes to a better appetite; and if he refuses scalded bran, let him have raw bran sprinkled with water. It is also necessary to pick out the finest and sweetest hay, which ought to be put down into his rack by single handfuls, and renewed pretty often, that being the likeliest way to provoke a sick Horse to eat. This is sufficiently known to every knowing stable-man, and I have only mentioned it, because through negligence or laziness it is sometimes but ill practised; and I have frequently observed in this Fever, that the first thing a Horse craves to eat is hay, wherein he ought by all means to be indulged, for he will pick hay several days before he will touch any thing else. It is also a good way to feed a sick Horse now and then by the hand, for many familiar Horses love to be fed that way, when they find it uneasy for them to be continually reaching their Heads up to the rack; this method often entices them to eat as much as may be necessary for them, while the Fever is strong upon them, for lowness contributes a great deal toward the removal of such distempers as proceed from over rarefaction of the Blood; and it is observable in these cases, that a Horse seldom recovers, till he loses his flesh: his water
needs

needs not be much warmed, but it should be given pretty often, and in small quantities ; for while the Blood-vessels of the Lungs, Midriff, and other parts that serve to respiration, are full and distended by the over rarification of the Blood, as I have already taken notice, a Horse in this condition is unable to glut down much at a time, for want of breath, which being observed by persons ignorant of the true causes of this difficulty of swallowing, both when they drink, and when their drenches are given them, they are apt to imagine this symptom proceeds from a soreness of the Throat ; and therefore they administer such things as they think proper to remove that symptom, and cover their Heads and Necks with woollen hoods, which is altogether unnecessary, if not hurtful, there being nothing more wanting in the way of cloathing, than to cover the Horse's Body from his Shoulders to his Hips, just to keep him moderately breathing, and to prevent his catching cold when doors and windows happen to be opened ; so far indeed cloathing is necessary, but farther I think needless ; too much heat and too great weight being improper in Horse's Fevers, which seldom or never go off by critical sweats, as those of the human body, but by a strong perspiration ; and indeed whenever a Horse sweats profusely, without sudorifick medicines in Fevers, or any other sickness, it is usually the effect of violent pain ; and therefore in this Fever particularly, slender cloathing is certainly the best ; and I am the more convinced of this, because I have had

Useful
Observa-
tions to
prevent
mistakes.

many Horses recover and do well in simple Fevers, that have never been cloathed at all, but stood altogether naked, and some of them in places that have not been very warm, but were such as they had been accustomed to when well.

The
symptoms
that re-
quire con-
tinuance
of Medi-
cines.

Having premised these things, I shall proceed to the other parts of the cure. If a Horse in a day or two begins to eat scalded bran, and to pick a little hay, there will be no great need of any thing farther than good nursing; but if he still refuses to feed, he ought by all means to lose more Blood, and the same drinks should be continued, which are both cooling and grateful to the Stomach, and two drams of saffron may be ty'd in a rag, and squeezed into the infusion; it is much more safe and better than hotter cordials, and things of a spirituous or cloying nature, made with wine or strong-beer, which some use upon all occasions, or the drenches made with Venice treacle, Mithridate, and such like things, which often prove hurtful, and sometimes fatal, in such cases where bleeding and coolers are chiefly required.

Observe his dung, and if that be knotty and dry, which frequently happens, by the increase of heat and perspiration, in that case let the following emollient glyster be given. -

Take two handfuls of Marsh-Mallows, one handful of Chamomile flowers, sweet Fennel-seeds an ounce; boil in three quarts of water, till one is consumed; pour off the decoction, and add to it four ounces of common treacle, and a pint of lintseed-oil.

This may be repeated till the Horse's Body is open, and his dung of a loose consistence, which will greatly help him forwards in his recovery, and bring him to his Stomach, and do much better than purging glysters, which in such cases often defeat the designs of nature, which requires nothing more than to keep the Body cool and open; and this end is better answered by these than purgatives. Therefore all the glysters given to Horses in continued simple Fevers, should be of the emollient kind; and in places where chamomile-flowers and marsh-mallows cannot be procured in due time, a glyster may be made with water-gruel and butter, or with fat broth, which will often answer the same end, without farther trouble. These things will be of great use to cool and refresh their Bodies, and to abate their Fevers, which generally continue but a short time, when rightly managed, and go off gradually.

In a simple Fever, the Horse generally begins to pick hay, the third or fourth day, with a seeming relish to food, though his Flanks will heave pretty much for a fortnight, and most of all towards the latter end of his sickness, when the Fever has in a manner quite left him, in so much that I have known some persons that could not be persuaded but a Horse has been worse when all the danger was over, than when he was first took ill; but the true reason of this mistake is, because in all these kind of Fevers, a Horse loses his Flesh very fast, by an increased perspiration, and the Lungs, Midriff, and Muscles of the lower Belly, sink

The signs
of a per-
fect Re-
covery.

in proportion to his other parts, which occasions a quick respiration or breathing, that can only wear off as he gathers his flesh and strength; but then if we examine his case critically, at this time, we shall find all the symptoms of a perfect recovery. He will be all over cool, and in good temper, without any remains of preternatural heat. Tho' he labours much at his Flanks, it seems to be no great pain or uneasiness to him, for he eats with great eagerness, and makes no stops, as in the time of his Fever; so that he stands in no further need of medicines, but to walk him abroad every day in hand into the air, and in his stable to allow him plenty of clean litter, that he may lye down often to take his rest, until he arrives to perfect health and strength.

Inflam-
matory Fe-
vers, how
to be ma-
naged.

As to an inflammatory Fever, it is no other than an augmented degree, which may happen in Fevers of all kinds where there is a plethora or fulness of Blood; and whether that proceed from high-feeding, from the nature of the food, from the natural temperament and constitution of the Horse, or from any other cause, is always dangerous to Horses, and ought by all means to be speedily removed by bleeding and other proper evacuations, with plenty of such things as are proper to allay the intemperate heat and effervescence of the Blood, which symptom ought always to be regarded in this and all other Fevers, otherwise they will soon prove mortal. I have seen several Horses opened that have died with their Blood excessively inflamed, and probably some of them for want
of

of proper and sufficient means to recover them. The ill effects of inflammatory Fevers. These had their Blood-vessels so much crammed and full, that the Blood burst out of the smaller vessels, and run over their Carcasses in many places, while the collar-makers were fleaing off their hides. Their insides were generally much inflamed, *viz.* the Lungs, Midriff, and Liver, with all the other Viscera; and upon cutting open the larger Vessels, the Blood gushed out as from a fountain, filling all the cavity of the Body, which plainly shewed, that bleeding in sufficient quantity was wanting; and likewise the plentiful use of diureticks, and things moderately cooling.

Of Complicated or Compound FEVERS.

A Compounded or complicated Fever, has besides an augmented motion of the Blood, some evil qualities in the Blood and animal Juices, A compound Fever described. that gives rise to the Fever, from whence they are denominated *malignant*, *putrid*, or *pestilential*, according as the Blood happens to be more or less vitiated.

The malignant Fever seldom rises to any remarkable degree of heat and burning, as other Fevers often do, neither does it come to any certain or distinct crisis; but as it creeps on gradually, so it wears off insensibly, nature striving all the time, to get rid of her enemy in various ways, sometimes by one secretion, and sometimes by another, but not perfectly by any, which renders the cure both tedious and uncertain; and without great care and

skill in the practitioner, these Fevers are apt to end in a Consumption, and seldom or never come to distinct intermissions, as in the human body.

Practitioners apt to make mistakes intreating these Fevers.

These sort of Fevers are not uncommon among Horses, though few practitioners, for want of a competent knowledge in such things, have been able to distinguish them from severe colds, or other diseases that are attended with feverish symptoms.

The causes of malignant and putrid Fevers.

They take their rise from several causes, sometimes from unwholesome food, viz. eating too great quantities of rotten or coarse hay, rank clover, musty bran or oats, too many beans, musty chaff, drinking unwholesome water ; all which things weaken the Stomach and poison the Blood. Sometimes malignant Fevers proceed from want of exercise sufficient to digest what a Horse eats, and the more unwholesome the food is, the more he suffers by lying still, which first depraves the Blood, and at length contaminates the Glands, and renders them incapable of performing their proper functions ; for in this Fever the glandular discharges are either too sparing or too liberal, whereby a Horse suffers extremely, though this irregularity in the secretions often proves the means to preserve life, by affording a sufficient truce for the proper means to be used for his recovery. Sometimes these Fevers proceed from harassing and working Horses beyond their strength, and by giving a shock to the constitution, causes an uncommon depression of the Spirits, whereby all the natural functions are disturbed, and put out of frame, and if a Horse be old, he seldom gets over such usage.

The signs are a slow Fever, with languishing and great depressions; sometimes lower, sometimes higher; sometimes the Horse is inwardly hot, and outwardly cold; at other times he is hot all over, but not to any extreme. His Eyes for the most part look moist and languid, and has a continual moisture in his Mouth, which is the reason why he seldom cares to drink, and when he does, it is but little. He feeds but little, and yet is not apt to go totally off his Stomach, but leaves off as soon as he has eat a mouthful or two; and the continual moisture of his Mouth causes him to move his Jaws in a feeble loose manner, with an unpleasant grating of his Teeth. He is commonly open in his Body, and his dung soft and moist, but seldom greasy. His staling is often irregular, sometimes very little, and sometimes he stales profusely, seldom high-coloured, but rather pale, with little or no settlement.

The signs of a malignant Fever.

If the Horse has no great cold or inward soreness, he may with good management recover. If he be very old, and his Blood grown vapid and poor, it will be difficult to restore him again, so as to be of any great use, unless his constitution has been naturally strong and vigorous. A Horse that has met with any violent shock either in hard labour, or by any other accident, will be in danger of some inward abscess or impostumation. It is also a bad sign when a Horse's appetite declines, which in some goes off gradually, and grows less every day, till at last they forsake all manner of food. When the Fever does not diminish, or keep

The Prognosticks.

at a stay, but rather increases, the case is then always dangerous, and the Fever will require more than usual skill to conquer it; but when the Fever sensibly abates, when his Mouth grows drier, and the grating of his Teeth ceases, when he mends gradually in his appetite, when he takes to lye, which at first he seldom does, sometimes for a week, a fortnight, or longer; these are all promising signs; and when such symptoms appear, nothing less than some preposterous ill management can prevent his recovery.

Th. Cure.

Cautions
in bleed-
ing.

This Fever is little understood by most practitioners, and at the same time so difficult, by reason of the various symptoms attending it, that I shall therefore be the more particular in the cure; and in order thereunto, it will be proper in the first place, to take away a moderate quantity of blood from the jugular or neck-vein; but this should not exceed a quart or three pints, unless there be also a cold or inward soreness, or some inflammatory symptom, or a more than ordinary fulness of Blood, in which cases a Horse may lose a larger quantity, and the bleeding may also be repeated, if it should be found necessary. After bleeding, let the following infusion be made.

Take Rue, Pennyroyal, and Scordium, of each a large handful; Chamomile flowers, half a handful; Gallings bruised in a mortar, half an ounce; the best English saffron, three drams. Infuse these in two quarts of boiling water in an earthen pan; cover the infusion with a plate or trencher, and when
it

it has stood to be cold, strain it into another vessel, or pour it gently off from the ingredients, which I think is rather the better way of the two for Horses.

Let a pint of this infusion be given twice a day, viz. in the morning fasting, and about two hours before feeding-time in the afternoon. It will both strengthen the Stomach, and help to remove the disorders of the Nerves, and by continuance wear out the Fever, if no uncommon accident or change happens, especially if a Horse be well ordered in his diet, and in other respects, as I have often found in many instances of Horses that have been under my own care. But as Horses in malignant Fevers seldom fall totally off their Stomachs in the beginning, as in most other Fevers, but usually keep picking and eating hay all the time, at intervals, taking breath always between whiles, and then going to it again; so that few can be persuaded of their danger, and therefore most people allow them oats or any thing else they can eat, which is altogether improper. And I have often observed in these cases, when a Horse is indulged with oats he cares for nothing else, and soon leaves off his hay, and after a little time loaths his oats also, and at last, forsakes all manner of food, and then his case indeed grows dangerous. Therefore this has been a sufficient caution to me at all times, never to humour Horses palates in Fevers, by allowing them oats or any thing else that may heat their bodies and give increase to their Fevers; but encourage

A proper
regiment to
be observ-
ed in the
diet.

encourage them as much as possible in eating scalded bran, and if they refuse to eat it scalded to allow them raw bran, sprinkled with clean water, with the sweetest and best flavoured hay that can be procured, and this should be put into their racks only by small handfuls at a time. But because in malignant Fevers Horses are apt to be depressed, sometimes to such a degree that they are scarce able to lift up their Heads to the rack; therefore they should often be fed by the hand. And indeed, some familiar Horses love to be so petted, and will by that means eat twice as much as they would do if they were left to themselves. And I have always observed Horses are never the worse, but the better in Fevers, with any quantity of good hay they can eat, and generally with right care, the more they take to their hay, the more their appetite increases, and the better they relish their water.

Several
necessary
cautions.

Now as to their drink, it is always a good token, in such cases, when a Horse drinks freely; for in this sort of Fever they seldom drink what is sufficient for them, till the Fever abates. But drinking is so absolutely necessary to thin and dilute their Blood, and to promote their secretions, that whenever I perceive them backwards to drink water or gruel, or any thing else when it is warmed, I always allow them to drink it cold, even in winter, without any other warmth besides the heat of the stable, that is, by keeping always a pailful of water in the stable, which takes off the chill, so as just to render it agreeable. This method often brings Horses sooner

sooner to their appetite, than by compelling them to drink their water of a nauseous warmth, and I never knew any Horse suffer by drinking cold water in Fevers; for when Horses are hurt at any time with cold water, it is generally when they are heated with exercise, and chiefly those that are corpulent and high-fed; for this chills and coagulates the Blood, and breaks its texture, whereas the cold water in Fevers dissolves its grumous parts, and renders it more fluid, which greatly contributes to remove the distemper. Besides, that cold water likewise cools and refreshes their Bodies, abates their inward heat, and perhaps has somewhat of the same effect on them, that lemon-juice and acids have on the human body; and I have many times observed Horses that have been much off their Stomachs in Fevers, and have obstinately refused warm water, drink cold water heartily, and go immediately to the rack to eat hay, which has tended greatly to their recovery.

I have cured many slow malignant Fevers in Horses successfully, by this kind of management; but if the Fever should still continue, by reason of a more than ordinary ill disposition in the Blood; if the Horse feeds poorly, if he stales often, his urine thin and of a pale colour, and without any settlement; if his dung be sometimes loose, and sometimes hard; if the redundant moisture of his Mouth continues with redness and sponginess about the roots of his Teeth; if his skin feels sometimes dry, and his coat looks surfeited, at other times moist and damp; these are signs that the distemper
still

still remains in its force ; and therefore the following things may be further administered.

Proper remedies in the increase of the distemper.

Take Diapente, two ounces ; Myrrh and Virginia Snakeweed, in powder, of each half an ounce ; Saffron, two drams ; Liquorice powder, six drams ; Mithridate, one ounce ; make into four balls, with a sufficient quantity of rectified Oil of Amber.

Let one of these be given every morning, and one every afternoon, about two hours before feeding-time, with three or four hornfuls of an infusion, after each, made by adding to the infusion above inserted, half an ounce of Virginia Snakeweed, and two drams of Castor, cut into small pieces, and mix with it a pint of white Lisbon or Mountain Wine. Let it be divided into four portions, for two days. After which the infusion may be made fresh, with the balls, both which may be continued about a week, or till the Fever abates. Or the following may be administered, which perhaps will be no less efficacious.

A method of cure for Horses of small value.

Take Penhyroyal, Rue and Scordium, of each two handfuls ; Chamomile Flowers, half a large handful ; Gentian root cut small, and Gallingsals bruised in a mortar, of each half an ounce ; Saffron, Salt of Wormwood and Liquorice, of each two drams ; infuse in two quarts of boiling water, adding to the infusion, when poured off, four ounces of Spirits of Wine, wherein half an ounce of Camphor has been dissolved.

This

This to be given as the preceding, *viz.* A pint every morning and afternoon, with a ball made of an ounce of diapente, a dram of Virginia snakeweed, and a dram of Russia castor.

For a Horse of small value, give an ounce of diapente once a day, made into a ball, with mithridate and oil of amber, and make a strong infusion of rue and pennyroyal, whereof a quart, three pints, or even two quarts, may be given every day, at proper times, till the Fever abates, and may be continued afterwards during pleasure, observing carefully all the above recited precautions concerning his feeding, but especially that he has plenty of water; and as soon as the Horse is fit to be walk'd abroad, it will be proper to lead him every day into the open air, for nothing will contribute more to recover him to his strength and appetite.

But if other symptoms arise, besides what are common in this sort of Fever, or if the common symptoms increase to any degree that may prove dangerous, these must be regarded. New and dangerous symptoms to be regarded. For instance, if the Horse grows costive, and that continues so as to take him off his Stomach and increase his Fever, recourse may then be had to glysters, which ought to be of the emollient kind, and not violently purgative. Three or four ounces of cream of tartar, or the same quantity of lenitive electuary may also be mixed, and given in one of his drenches, once in two days, till he is sufficiently open; this will be the likeliest means to prevent inward inflammations, which in this languid state of the Blood is

faction proceeds from lingering Fevers, it is then more universal, and seizes the Vitals and corrupts the Lungs, the Liver, Kidneys, or other principal Viscera, and sometimes the whole Mass, so as to cause a most miserable death.

Therefore, in all Fevers where there is any degree of malignity, the proper medicines should be often repeated, to prevent putrefaction and rottenness; for if nature happens not to be very beneficent, the common method of administering two or three drenches will avail but little to prevent evils that attend these maladies; and if these medicines should happen to be improper, the mischief must still be the greater. In such cases the practitioner's chief study ought to be, to order those things in sufficient plenty, that have a tendency to rarefy the Blood, and resist putrefaction, such especially as have been already inserted, with plenty of gruel and other diluters. But if there is actually the signs of putrefaction, the medicines ought to be joined with the warmest Cardiacks, Diaphoreticks, and Volatiles, such as Sal Armoniac, Salt of Amber, and Salt of Hartshorn; but because of the high price these things would bear when given in sufficient plenty to Horses, I have often substituted Camphor and the oil of Amber, which contains a portion of the volatile salt in it, and which I have always found agreeable, in these and many other diseases of Horses. The latter has been already directed, in balls, a spoonful may be also added to every drink, and the Camphor may be likewise increased to two
drams

drams dissolved in spirits, with plenty of diluters, even cold water, as much as he will drink, if he refuses things that are warm; and by this method I have had many Horses recover, notwithstanding they have discovered the usual signs of putrefaction. If the distemper be attended with inward soreness, it should be treated with a mixture of pectorals, as in a pleurisy or peripneumony, for rottenness and impostumations of the Lungs happen also from violent and inveterate Colds, where no malignant or other Fever has gone before. Of this the reader will be more fully informed, when I come to treat of the Diseases of the Breast.

But in all putrid cases to which Horses are liable, whether they proceed originally from Fevers or from sudden heats and colds, coagulating the Blood, or from any sudden stop given to perspiration, the following signs constantly attend, and are to be regarded, as they will enable the practitioner to judge what he is about. A Horse in these cases always runs at the Nose, but not in a kindly white snout, as in the breaking of a cold, but of a reddish or greenish dusky colour, and of a consistence like glue, and sticks like turpentine to the Hair on the inside of his Nostrils. If this symptom abates and turns to a gleet of clear thin water; if the Horse loses his Flesh, with his Hide open, and mends in his appetite; these are for the most part infallible signs of recovery, and nothing further will be necessary than to proceed in the use of the foregoing things, for a few days longer, and afterwards

to walk the Horse every day in the air. But if the matter continues pasted on the inside of the Nose ; if he seems to have a constant stoppage there, from an obstinate inflammation of the Glands, with a frequent sneezing and constant snivelling ; his case may then be looked upon as dangerous ; and therefore no time must be lost in plying him with proper medicines, and careful attendance : but if with these symptoms he loses not his Flesh, and yet becomes hide-bound ; if he altogether forsakes his meat, grows more weak and feeble ; if swellings arise about his Joints ; if the kernels under his Jaws swell and feel loose ; if his Eyes looks fixed and dead ; if his Tail is raised, and quavers ; if his Breath smells strong, and begins to purge and scour, and discharges a foetid dark-coloured matter, his case may then be looked upon as desperate; and it would not be worth while to be at any trouble or expence to save him.

The method to be used when a Horse is upon the recovery.

But when a Horse is recovering out of this distemper, he exhibits quite different signs ; though he loses his Flesh, yet his Hide keeps open, and his Skin feels kindly ; his Ears and Feet are of a moderate warmth ; his Eyes, that before were dull and heavy, begin to look brisk and lively ; his Nose grows clean and dry ; his appetite daily increases ; he lyes down regularly, and rests with great ease ; stales and dungs regularly ; and some break out with eruptions, in the decline of the distemper, which are of great service : and where these symptoms appear, there will be no more need

of medicines, but what further remains to be done, is only in the way of diet and exercise, which ought to be much regarded when Horses are just come out of sickness. In this respect most people usually err, and are for feeding largely, to bring them soon into good order : and though some Horses will indeed go thro' this kind of treatment without any hurt ; yet when a Horse, or any other creature, is much reduced and weakened with sickness, the Stomach and Bowels are proportionably so too, which makes hasty feeding always hazardous, because in this case the appetite often craves more than the Stomach can digest, and this may easily cause a return of the distemper, which I have sometimes seen, and has always been dangerous ; and if he escape a relapse, it is great odds but he will be surfeited, which frequently happens ; and the surfeits that come after Fevers, and other acute distempers, prove very obstinate and hard to cure. And therefore the best way to avoid this, is to begin with a light diet, small feeds, and increase by degrees, not according to a Horse's appetite, which in some is exceeding voracious, but according as he gathers strength, and is able to digest well what he eats. He should also be taken out every day into the open air, in the manner that has been already mentioned, and be brought into his exercise and wind by degrees, and he will sooner recover both his flesh and strength by this means, than by pampering and hasty feeding, or by any other method that can be devised, as I have often found from experience.

Of Epidemical FEVERS, and other Distempers of
HORSES, said to be catching and infectious.

THE writers in physick often distinguish between those distempers that spread over many countries and nations at once, and those that are limited and confined to particular provinces or places. The first they term Epidemical, the later Endemial; but that I may not puzzle my readers, I shall avoid as much as may be, the distinctions made by the learned, and treat those distempers that come at some particular seasons, whether they be more or less universal, or more or less infectious, under the general term Epidemical, that being an appellation most commonly in use among us, and the best understood.

History affords us many dismal relations of murrains and plagues among Horses, and other brute creatures, in former ages, which were indeed so terrible, that they could be reckoned nothing less than heavy judgments from Heaven, being generally followed with famine and pestilence among men, which swept off the greatest part of the inhabitants, whenever these calamities come; but such universal devastations have more rarely happened in latter times, and, by the goodness of Divine Providence, much less among us than in foreign nations.

It is, however, certain, that even in our times, Horses as well as Men, are frequently subject to epidemical Fevers, and several infec-

tious distempers, that may be reckoned of the pestilential kind ; and may be owing to some particular temperament of the air, or to some unknown cause, whereby many Horses are seized, and in different places at once. These prove more or less dangerous according as the previous state of the Blood happens to be more or less depraved, or according as the present disposition of the distemper happens to be more or less severe ; for among us many of the complaints that come in this manner, prove but slight disorders, and often go off without much help from medicine, only with a little care and management: others are more dangerous, and more remarkably infectious, and sometimes prove suddenly fatal to many Horses ; but when such maladies happen in our climate, they are usually of short continuance.

Pestilential Fevers are thought only to differ in degree from those of the malignant kind, which are common at some particular seasons, and do not always prove deadly, though the causes from whence such Fevers proceed may be very different, and are to us in a great measure unknown ; but however that be, the deadly effects are much more sudden than any other, and are such, that they scarce allow time for the administration of medicines. The Fevers that resemble these most in our climate, always begin with great stupidity, swellings of the Eyes and Eyelids, swellings of the parotid Glands and other kernels about the Throat, a profuse running of dusky coloured matter from the Nose, and a flux of the same

kind of matter from the Mouth, and of a foetid ill savour; sudden large swellings of the Limbs, especially about the Joints, which are often followed with Staggers of the apoplectick kind, having all the same symptoms that arise from poison, and are to be treated accordingly, with bleeding, glysters, rowels, and other evacuations, with the most efficacious cephalicks and alexipharmicks, as Castor, Assa Foetida, volatile salts of all kinds : balls or drinks made with Gentian, Zedoary, Gallangals, white Dittany, Bistort, tormentil roots of contrayerva, and Virginia snakeweed, with Camphor, Mithridate or Venice-treacle, in the manner already laid down for the cure of malignant Fevers. But as these deadly distempers happen but rarely among us, so the sickness here usually rages but for a short season. I can remember this sort of sickness but once in my time, above thirty years ago, which almost ruined many farmers in several parts near *London*; it came in a very dry season, and after about three months continuance, began to abate and grow less deadly, and soon after intirely ceased.

But the most common distempers of Horses may be sometimes counted epidemical; when they seize many Horses at once, and become a general complaint in divers places, and are attended with some unusual symptoms. Even colds are frequently so rise, especially among young Horses, that we can scarce go into a stable where the distemper has not spread itself with the appearance of some uncommon malignity; but these colds are often so far from pro-

Malignant
Colds fre-
quent and
usual.

proving deadly, that with proper care they tend greatly to the improvement of a Horse's health and constitution, and render such Horses more hardy and durable afterwards, and recover many Horses to perfect soundness, that before were full of complaints.

In epidemical colds, the glands about the Throat, and those under the Ears, are more inflated than in common and accidental colds; and where a Horse's constitution is good, and his Blood no ways vitiated before, may be cured as other colds, only that his Head and Neck ought to be more carefully covered and kept warm, to promote a constant breathing in those parts.

The signs of a malignant cold.

About the end of the year 1732, there was a very remarkable distemper of this kind among the Horses in *London*, and in several other parts of the kingdom. They were seized suddenly with a vehement, dry, sounding Cough, which shook them so violently, that some of them were often 'ready to drop down with hard straining and want of breath; their Throats were raw and sore, many of them had their Kernels swelled, and painful to the touch. For the first two days most of them refused all manner of food, as well as water, and had so many other bad signs, that when this distemper first broke out, many were afraid of a mortality coming among them; and indeed the only good sign they had was the vehemence of their cough, that both kept their blood in motion, and speedily set them a running at the Nose, which generally began the third day, and continued

An epidemical cold in the year 1732 described.

in so profuse a manner for five or six days, that some of them in that time discharged as much as two or three pails would hold of purulent matter, which however was generally of a landable colour and good consistence. While the running at their Noses continued, they could not feed much, tho' their appetites were craving, because the matter mingled so much with their food, as to render it altogether disagreeable; so that they lost their flesh exceedingly: but this loss of their flesh proved a benefit to them rather than a detriment; and as soon as the running abated, they eat voraciously, and soon recovered their flesh. This distemper, though no ways mortal, yet was so very catching, that when any Horse was seized with it, I observed those that stood on each hand of him were generally infected as soon as he began to run at the Nose, in the same manner as the small pox communicate the infection when they are upon the turn.

While this sickness lasted, above a hundred of the Troop-Horses under my care were seized with it. I always caused the sick Horses to be removed from the sound, as soon as they were taken ill, and put by themselves, as in an hospital. And in one troop of the Horse-Grenadiers we filled a stable of thirty-six standings in three days, an infirmary of five standings, and another of eighteen standings, in three or four days more; nevertheless all of them recovered in a short time. Also many gentlemen's Horses where I was concerned, did well, without any remaining taint from the distemper;
and

and it was observable, that some who had been subject to a dry cough before this sickness, continued more free from it for some time afterwards, though I do not remember any of them were absolutely cured of this defect, notwithstanding their great purgation from the Nose, which plainly shewed me the difficulty of removing an obstinate dry cough, by the common and usual means of promoting a discharge that way. The Horses that chiefly escaped the distemper, were those that had been kept in constant strong exercise, or full-aged old Horses, many of which were no ways infected, though very much exposed to it.

The method I followed in curing this malady was simple and easy; for having observed by their dung and manner of staling, that neither the Stomach, Guts, or Kidneys, were in any degree injured, but only their Lungs and the Glands about their Throats very much stuffed; I ordered them, as soon as they were seized, to be bled plentifully, which gave them a sensible relief, for at first many of them were feverish and very short-breathed; and by somewhat emptying their vessels, helped the sooner to bring on the running at their Noses, which in a Horse answers the same end as expectoration in a man. Afterwards I gave them soft balsamicks, mixed with deterfives, which are always necessary for Horses, because they require more pungent and stimulating medicines than men, their fibres being more strong and rigid; and therefore the following drinks were generally administered with good success, viz.

The method observed in curing this malignant cold.

Horses, that were obliged to work, had their Noses in so nasty a condition, and so much exposed to open view, that they could not avoid being seen by every body. But this other distemper was not so universally talked of, tho' vast numbers were seized with it, and some died suddenly of it. In one week I had near a hundred of the Guard and Grenadier Horses, besides many belonging to gentlemen, taken so bad, and with such violent symptoms, that I was at first afraid of its proving very dangerous; but of the great numbers that were under my care, not one did amiss.

This Fever described. They were seized suddenly with a very hot burning Fever, and their flesh apparently seemed so sore and tender, that they could scarce hear to be touched; they were generally collicive, staled but little, and that with pain and straining, and of a very high colour. They refused all manner of sustenance, and were so extremely sick, that they would not drink; neither did I perceive any of them offer to lie down till their distemper came to a crisis: upon treating them with cooling and opening medicines, and with plentiful bleeding, they generally recovered.

I was confirmed in this method by several symptoms that appeared upon the turn of the distemper, some of them having very hot and inflamed eruptions, which broke out in several parts with blisters, resembling the St. Anthony's Fire. Those that came to maturity, appeared generally on the inside of the Arm or Fore-Leg, near the Elbow or towards the Hock,
and

and some of them had several large bags of water that gathered on the sides of their Bellies, or towards their Flanks, near the inguinal Glands, which the Farriers called a watery farcy, but indeed, was the effect of a very hot inflamed Blood. Some had been costive before this distemper seized them, for their dung was extremely hard and black.

In this case soft and oily glysters were made use of to relax their Bowels, and in some the bleeding was repeated; cooling infusions, with *The Cure.* fall prunella, and cream of tartar, saffron, and such like things were also given, to open them both by dung and urine, and by that means to abate the heat and effervescence of their Blood; which not only took off their Fevers, but caused the critical discharges from the boils, which at first had but a very indifferent aspect, to digest into good matter, without leaving any taint behind them; so that none of the Horses that were treated in this manner did amiss, and where some died in the hands of unskilful persons, it was generally owing to their giving them hot inflaming things, under the notion of cordials; and cloying them with sugar sops before their Fevers were abated, and their Stomachs in a condition to receive food. And indeed this is the true reason why so many Horses miscarry in Fevers, *Why so many Horses miscarry in such distempers.* because most people are apt to force them to feed, by administering food with a horn, when it is altogether improper, neglecting to bleed sufficiently in the beginning, giving hot medicines inwardly, with wines and other spiri-
tuous

tuous liquors, which only add fewel to the fire; which things are always pernicious in inflammatory distempers, especially to Horses that are used to a simple diet.

This Distemper
also of
short con-
tinuance.

This Distemper did not continue in its full force in *London*, above three weeks or a month; and those that were seized about the latter part of that time had it more favourably, and required little more than bleeding. Those that looked any ways surfeited were purged, and had antimonial powders given them, which generally perfected their cure; and some were sent to the salt-marshes, or other spring-grass, the sickness happening just before the grass season.

I have known single Horses seized with the same symptoms at other times, when the distemper was neither infectious nor epidemical; and these were always successfully relieved with bleeding and other evacuations, especially with diureticks and diluters, giving them plenty of water-gruel, or white water.

The Strangles is a distemper that almost all Horses are subject to, at one time or another, especially when they are young, but sometimes it is very rife, and may be ranked among their epidemical diseases; and then it seizes both young and old that have not had it before, and is somewhat infectious, tho' for the most part the Strangles are no ways catching. But in this case they are usually attended with a Fever, loss of appetite, and other symptoms of a malignant nature. But these things will be treated of more fully hereafter. See IVES and STRANGLES.

In some seasons the spring-colds among the young Horses, are accompany'd with an epidemical Fever, especially about the time of shedding their Teeth, and putting out of their Tushes; and without some care and diligence be used, these colds are apt to leave an ugly taint behind them, a continuance of the cough, or a relaxation of the Kernels under the Jaws, with a too great moisture and stottiness of the Nose, which sometimes turns to the Glanders.

The Glanders is always reckoned an infectious distemper; but I have known this malady sometimes more frequent than usual, with the symptoms of very great malignity in the Blood. When this happens, it is more then ordinarily infectious, makes a sudden progress, and soon ends in a Rot, and is extremely dangerous to all Horses that come within the scent of their Breath, or into the stable where they stood, until it has been carefully cleaned and well-air'd.

The Farcy is seldom reckoned infectious, for it is often cur'd without removing the diseased Horse from the sound Horses that stand with him; the reason of which will be shewn, when I come to treat of that distemper. But the symptoms of the Farcy often appear in some kind of epidemical Fevers, when it is indeed infectious, and makes a quick progress on every Horse that is seized with it, spreading universally over the whole Body, forming deep abscesses among the Interstices of the larger Muscles, discharging great quantities of corrupt foetid matter, resembling the grounds of beer. In the time of contagious Fevers, such instances are sometimes

to be met with, where by reason of a more than ordinary malignity in the Blood, or some ill treatment, or some unfriendly disposition of the air, all the common symptoms of a degenerate Farcy will arise; and this makes some afraid of every appearance of the Farcy, as being infectious; but in such cases it may be more properly termed an universal Rot than a Farcy, and for the most part proves deadly; and if any means are used, they ought to be such as are proper in pestilential distempers.

An epidemic Distemper that happened to some young Horses.

About eight years ago, several young Horses were suddenly seized with the Staggers, attended with such uncommon symptoms, as put the ordinary practitioners quite to a stand. One thing was visible to every body, that their Heads were greatly disordered, by which most of them more or less lost the use of their Limbs; some were only cramped and convulsed in a moderate degree, and were soon relieved by bleeding, and some few cephalick medicines, with rubbing and proper embrocations; in others this new distemper seemed to have a near affinity to a Hemiplegia, viz. that sort of Palsy which in men takes away the use of one side, but not to such a deadness as happens to the human body.

A very extraordinary case, which resembled an Hemiplegia or dead Palsy.

I had one Horse was so bad, that when he came to be moved, he was held up on the affected side by several men, who were forced to support his whole weight. When he was let loose in a riding-house, to see his motions, he turned round like a person in a Vertigo, and fell down suddenly; but this rotation or turning

ing round, did not proceed altogether from the causes which usually produce the Vertigo in men, but from his wanting the use of his Limbs on the off-side, which made him turn round to his near-side, the Limbs of his near-side being no ways affected, but firm, which was the reason of his circular motion, for he could not get streight forward for want of use in the other. Several Horses were taken in the same manner, but in a lower degree, and some were convulsed, and had their Mouths somewhat pulled to one side, but were soon relieved; for those that were only convulsed in this manner, retained somewhat of an appetite to feed, which greatly contributed to their cure.

Another remarkable case happened at this time, of a Horse that was so much convulsed, that whenever he offered to raise his Head in the least degree, nothing could be seen of his Eyes but the whites, which made him look very ghastly; but as this Horse had also a strong Fever, and was affected on both sides alike, so he never lost the use of his Limbs, but only went staggering, and with a catching, from the convulsive cramps. This Horse recovered with

Another case of the same kind, but with different symptoms.

bleeding and other plentiful evacuations, and the constant use of cephalicks, which were given him in great plenty, especially the Castor, which had such an effect upon him, that it kept him breathing above three weeks without intermission, insomuch that all his cloaths and the whole stable was perfumed by it; and if these things were but one day omitted, while

The method followed in curing these maladies.

the Convulsions lasted, the Horse always fell back, and was the worse for it ; so that he must inevitably have died in the hands of any common practitioner, none of whom I ever knew treat convulsed Horses after this manner.

As to the Horses that were affected on one side only, their lameness was more apparent, so that I caused them to be put into close stalls, and littered quite up to their Bellies ; and also a good quantity of straw to be piled up against the wall or partition next the lame side, that they might rest upon it, and not be exposed to fall down. One gentleman, who had a very fine Horse seized with this distemper, ordered the whole side of the stall to be lined with a triple bass matting, and his litter was spread all across the stable, pretty deep, from the end of the standing ; which method was followed with most others that were under my care, and affected in the same manner, that they might not hurt themselves in case they should move backwards, and fall down, but lie easy till they were helped up, for scarce any of them were able to rise of themselves. But most of these Horses leaned their lame sides altogether against the stall, without moving their posture, till they had pretty well recovered the use of their Limbs, which generally happened to some in about ten or twelve days ; others that were less affected, recovered much sooner, so as to be able to stand without leaning.

These

These had all of them Fevers when they were first seized, which is an usual attendant on convulsive disorders. But after bleeding and other evacuations their Fevers abated, and they began to feed on scalded bran, and pick a little hay by the hand, which was very helpful to them, and kept their Jaws streight and pliable. They were bled plentifully, and had glysters and lenitive purges, which to Horses I always substitute instead of vomits, where the discharges of the first passage is required. They were at the same time plyed with cephalicks and proper embrocations outwardly, for which the reader may consult Chap. I. & seq. where I have treated of all these distempers methodically, which derive their origins from the Head and Nerves.

I shall conclude this subject of Epidemical Distempers, by taking notice, that the *Yellows* and *Staggers* are sometimes epidemical, there being many young Horses seized with this malady, more remarkably in some seasons than others, and generally about the end of the spring, or the beginning of summer. This is no other than a bilious Fever, and seems to be the same mentioned by the *Sieur de Solleysell*, Part II. Chap. XIII. under this title, viz. *Of the Diseases of the Head, caused by choleric Humors*, which brought a great mortality among the Horses in some parts of France and Germany in the year 1660, and 1661, and afterwards in 1669 and 1670. This is seldom universal

The Staggers with the Yellows, sometimes epidemical.

universal or of long continuance among us, but where it comes, proves fatal to abundance of Horses, for want of knowing the true origin and source from whence all these various symptoms arise, whereby the Head and the whole Body is so much affected.

END of VOL. I.









